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June 1993

## INTERNATIONAL AGRICULTURE AND TRADE REPORT

# WESTERN HEMISPHERE

### Situation and Outlook Series

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## Acknowledgments

In June 1992, the Agriculture and Trade Analysis Division (ATAD) of the USDA Economic Research Service, reorganized and established four regional branches; Africa and the Middle East, Asia and the Pacific Rim, Europe, and Western Hemisphere. In addition, two crosscutting branches were established; Markets and Competition, and Trade and Development.

This issue of the *Western Hemisphere International Agriculture and Trade Report* is the first released under the new ATAD structure. The contents of the report reflect the diversity of agriculture among the countries and the economic and political issues faced by their respective agricultural sectors. The report is broad in scope and articles address specific issues that affect agricultural performance in the Hemisphere. Important among these issues are the North American Free Trade Agreement, GATT, agriculture and the environment, policy reform, and current and forming trading blocks.

Because this is the first report of the new Western Hemisphere Branch, a significant amount of historical information was included to help the reader understand the evolution of the political and economic environment in which current agricultural policies and production occur. Subsequent issues of this report will be more balanced between the past, current, and future.

Appreciation is extended to the many reviewers of this report. The authors and editor wish to thank the staffs of the USDA Economic Research Service (ERS) and Foreign Agricultural Service (FAS), including Carol Goodloe and the staff of the International Trade Policy - Western Europe and Inter-America Division of FAS; Robert A. Riemenschneider; Phil Shull; Lloyd Fleck; John Link; Fred Surls; Kathryn Zeimet; Jerry Sharples; William Coyle, Bill Kost and the staff of the Asia and Pacific Rim Branch of ERS; and many others.

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Approved by the World Agricultural Outlook Board. Summary released June 3, 1993. *Western Hemisphere* is one in a series of six regional reports in the 1993 Situation and Outlook series. Other titles are *Former USSR*, *China*, *Asia and the Pacific Rim*, *Africa and the Middle East*, and *Europe*. Summaries and text of reports also are available electronically. Call (202) 720-5505.

### Conversion Equivalents

The metric system of weights and measures is used in this report. The following are conversions to the U.S. system of weights and measures.

1 hectare (ha) = 2.47109 acres

1 kilogram (kg) = 2.204622 pounds

1 liter = 1.0567 quarts

1 liter = 0.26418 gallons

1 metric ton (mt) = 2,204.622 pounds

1 metric ton = 1.102311 short tons

( 1 short ton = 2,000 pounds)

1 metric ton of wheat = 36.7437 bushels

1 metric ton of corn = 39.368 bushels

1 metric ton of barley = 45.9296 bushels



## Summary

Recent economic, agricultural, and policy reforms have helped to increase trade in the Western Hemisphere. However, while liberalization and development of regional trading blocks should advance overall trade volume, the specific impacts on various countries and commodities are uncertain. Growing environmental concerns and evolving trade reforms have precipitated clashes between objectives in some countries of the Hemisphere; conflicts that are likely to continue over the next decade.

U.S. trade to the Western Hemisphere continues to recover from increased competition, world recession, a stronger dollar, and the debt crisis in Latin American countries. Over the past decade, horticultural, animal, and other high-value products have accounted for an increasing share of total U.S. agricultural exports to the region.

In 1992, the United States imported \$12 billion in agricultural goods from the rest of the Western Hemisphere, and exported nearly an equal value to the region. U.S. farm imports and exports in the Hemisphere are expected to increase slightly in 1993 as regional economies improve. Thus, the U.S. agricultural trade balance should remain steady.

Strong population growth, nearly 2 percent per year, in tandem with increasing household incomes indicate potential for expansion in Latin American food demand. For example, to bring these diets up to 1990 U.S. standards would require an additional 2 million tons of grain per year, 5 million tons of vegetable oil, and 31 million tons of meat. Export opportunities are positive for U.S. farmers.

Current economic growth and investor confidence are pulling Latin America out of a decade-long debt crisis. However, Cuba, with the loss of major support from former eastern block countries, may face further belt tightening.

Although less than 30 percent of the Western Hemisphere population lives in rural areas, agriculture remains important in the economies of most countries as a major employer (both upstream and downstream from the farm), and as a source of foreign exchange, income for governments, and food and fiber.

Poor economic performance in the late 1970's and early 1980's led to extensive policy reforms in Mexico, Argentina, Brazil, and other Latin American countries designed to make their agricultural sectors more market oriented. Agricultural reforms were more modest in the United States and Canada. Although policy reforms have been adopted in many countries, most governments still provide some support to domestic agriculture.

The Canadian economic growth rate is expected to rise in 1993, benefitting from low inflation and increased exports. Grain and oilseed production is forecast to rebound in 1993/94 from last year's poor growing conditions, with canola, corn, and soybeans having the largest increases.

Policy reforms begun in the 1960's have had a major impact on Chile's farm sector and its agricultural and nonagricultural trade. By the early 1980's, these reforms had created what is today one of the most open market-driven economies in the world.

Mexican population growth and higher per capita income are expected to spur demand and expand the market, particularly for U.S. exports. At the same time, Mexico's exports of high-value farm products, including fruits, vegetables, and livestock products, to the United States will rise.

Increasing political and economic uncertainties have slowed Brazil's growth. However, the agricultural outlook remains stable due to continued governmental support, good harvests, and a realistic exchange rate policy. The United States will continue to face strong competition from Brazilian exports of poultry and the soybean complex.

The Argentine agricultural sector and the national economy are highly dependent upon farm exports, especially to Asia, the Middle East, and other South American nations. Brazil is becoming Argentina's most important market for grain, and close commercial ties are developing between the two nations. Soybeans and derivatives are Argentina's leading agricultural exports. The expansion of the Argentine farm sector will depend upon private investment, reduction of marketing costs from "privatization" of storage and transportation, and prices in the world market.



## Glossary

*Andean Group (AG)* — also known as the Andean Pact, was established in 1969 to promote regional economic integration. Full members include Bolivia, Colombia, Ecuador, Peru, and Venezuela. (The AG also has associate members and observers.)

*ALADI* — Latin American Integration Association, was established in 1980 to promote freer trade between members, which include Argentina, Bolivia, Brazil, Chile, Colombia, Ecuador, Mexico, Paraguay, Peru, Uruguay and Venezuela.

*ATPA* — Andean Trade Preference Act, was authorized in 1991 by the U.S. Congress to encourage production of legal (non-drug) crops in Bolivia, Colombia, Ecuador, and Peru. Peru's application for benefits is still under review. Countries under the ATPA are eligible to export many goods duty-free to the U.S. market.

*CACM* — Central America Common Market, was established in 1960 to promote free trade and a customs union among Costa Rica, El Salvador, Guatemala, Honduras, Nicaragua.

*CARIBCAN* — Canada-Caribbean Commonwealth Program, is a preferential trading agreement established in 1985 by Canada to benefit the Commonwealth Caribbean.

*CARICOM* — Caribbean Community and Common Market, was established in 1973 to promote political and economic integration in the former British West Indies. All but 5 of the 18 British Commonwealth countries, territories or colonies in the Caribbean, are full members. CARICOM also has 2 associate members and several observer countries.

*CBI* — Caribbean Basin Initiative as its commonly called, but officially named the Caribbean Basin Economic Recovery Act (CBERA), is a U.S. trade preference agreement implemented in 1984 to provide duty-free access to the U.S. market for 27 Caribbean, Central and South American countries (only 24 have received benefits). In 1990, the CBI (or CBERA) was replaced by the Caribbean Basin Economic Recovery Expansion Act which makes the program permanent.

*EAI* — Enterprise for the Americas Initiative is a U.S. program supporting economic and trade reform in Latin America and the Caribbean. The program is intended to encourage trade liberalization in the Western Hemisphere, reduce Latin American debt, and increase foreign investment in these same countries. The EAI contains elements which encourage a Western Hemisphere-wide free trade zone in the future.

*EC* — European Community is an economic customs union created in 1958, which included a Common Agriculture Policy (CAP) for member countries. The EC was originally formed by 6 nations, but is currently composed of 12 member countries; U.K., France, Germany, Ireland,

Spain, Portugal, Italy, Denmark, Greece, Belgium, Luxembourg, and the Netherlands.

*EEP* — Export Enhancement Program was initiated in May 1985 under a Commodity Credit Corporation (CCC) charter to help U.S. exporters meet competitors' prices in subsidized markets. The program was formally authorized by the Food Security Act of 1985. Under the EEP, exporters are awarded commodity certificates which are redeemable for CCC-owned commodities, enabling them to sell certain commodities to specified countries at prices below those of the U.S. market.

*FAO* — Food and Agriculture Organization of the United Nations was established in 1945 to raise living standards and increase the availability of agricultural products in all countries. Most UN members are also members of the FAO, and current FAO membership exceeds 150 countries.

*FSU* — The former Soviet Union dissolved into 15 separate republics in 1991. These new republics are Russia, Ukraine, Byelarus, Moldova, Kazakhstan, Uzbekistan, Kyrgyzstan, Tajikistan, Turkmenistan, Armenia, Azerbaijan, Georgia, Lithuania, Latvia, and Estonia.

*GATT* — General Agreement on Tariffs and Trade was first negotiated in 1947 among 23 countries, including the United States, to increase international trade by reducing tariffs and other trade barriers. This multilateral agreement provides a code of conduct for international commerce. GATT also provides a framework for periodic multilateral negotiations on further trade liberalization and expansion. The eighth and most recent round of negotiations began in Punta del Este, Uruguay in 1986 - known as the "Uruguay Round". There are currently over 100 members of the GATT. Western Hemisphere members include the United States, Canada, Mexico, Argentina, Brazil, Guatemala, Guyana, Haiti, Jamaica, Nicaragua, Peru, Suriname, Trinidad and Tobago, and Uruguay, and others.

*GSM* — The GSM is an agricultural export credit guarantee program of the USDA's Commodity Credit Corporation (CCC) in effect since 1981. Under this program, CCC protects U.S. exporters or financial institutions against loss due to nonpayment by a foreign buyer. The maximum credit guarantee coverage period is 3 years under GSM-102, and up to 10 years under GSM-103. The amount of coverage, including the interest rate and the guarantee fee, is established in the Office of the General Sales Manager (GSM) of the Foreign Agricultural Service of the USDA, and varies by country.

*HVP* — High-value product refers to any traded agricultural commodity that incorporates a value-added component into its price once it leaves the farm gate. All livestock and dairy products, and processed grains and oilseeds are considered HVP. Fresh fruits and vegetables, although marketed in their raw form, are considered to be



HVP due to their perishable nature and specialized transportation and marketing requirements.

**LVP** — Low-value or raw bulk agricultural products such as corn, wheat, soybeans, rice, and cotton are examples.

**MERCOSUR** — The Spanish acronym for "the Common Market of the South" (MERCOSUL in Brazilian Portuguese). MERCOSUR is a trading block being formed by Brazil, Argentina, Uruguay and Paraguay under the 1991 Treaty of Asuncion. Among other goals, MERCOSUR calls for the free movement of goods and services, and a common external tariff by 1995.

**NAFTA** — The North American Free Trade Agreement is designed to achieve economic integration and increase trade among the U.S., Canada, and Mexico. Treaty negotiations were completed in 1992, and the U.S. president signed the agreement in December. To be implemented, the treaty must be ratified by the legislative bodies of the three nations and as of June, 1993, the NAFTA is still under consideration for ratification by all three countries. Agriculture is only one of many industries included in the NAFTA provisions. If implemented, the agreement would immediately eliminate nontariff barriers for most agricultural goods and replace them with either a tariff-rate quota

or an ordinary tariff. All quotas and tariffs would then be phased out over a 5-15 year period.

**USCFTA** — U.S. - Canada Free Trade Agreement went into effect on January 1, 1989. The objectives of the treaty are to reduce barriers and promote trade between the two countries. In agriculture, liberalization occurred in tariffs, export subsidies, certain nontariff barriers, and technical regulations.

**Uruguay Round** — The current round of the GATT negotiations which began in Uruguay in 1986.

**Note:** For other Western Hemisphere Trade Agreements (or Trade Blocks) see *table 1.2*.

## References

- Lipton, Kathryn L., and Susan L. Pollack (1989). *A Glossary of Food and Agricultural Policy Terms, 1989*. AIB-573. USDA, Economic Research Service.
- USDA, Foreign Agricultural Service (1988). *Dictionary of International Agricultural Trade*. Agriculture Handbook No. 411.



## Overview of U.S. Agricultural Trade with the Western Hemisphere

*The United States and the rest of the Western Hemisphere are major agricultural net exporters, and on a similar scale. They ship about \$12 billion annually in agricultural products to each other. Each represents about one-quarter of the other's export market and about half of the other's import supply. Recent economic and trade liberalization in Latin America has increased trade in the Hemisphere. New regional trading blocks are likely to have a similar effect of increasing overall trade volume, but specific impacts on individual countries and commodities are less certain. [Constanza Valdes, Ralph Seeley, and John Link]*

The United States and the other Western Hemisphere countries trade substantial amounts of agricultural products with each other, partly because proximity lowers transportation costs and some commodities are not as easily produced in the importing trade partners (for example, bananas in the United States). Trade also arises when differences in latitude cause production to peak at different times in different countries. Five Western Hemisphere blocks that trade with the U.S. are examined in this paper; Canada, Mexico, MERCOSUR, the Andean Group (table 1.2), and the rest of the Western Hemisphere, excluding the United States.

The largest Western Hemisphere agricultural trading partners for the United States are Canada and Mexico (appendix table 2). The remainder of the Western Hemisphere has substantial population (appendix table 1), natural resources, and trade, but has until recently been held back by political and economic factors (tables 1.1 and 1.3). If recent progress can be sustained, the whole of the Western Hemisphere will represent an even larger trading partner for the United States (figure 1.1).

The United States ships more than one-quarter of the value of its agricultural exports, \$12 billion in 1992 (appendix table 4), to Western Hemisphere countries. U.S. exports to the Hemisphere grew rapidly, 16 percent annually, from 1970-72 to 1978-84 (appendix table 2), and moderately, 4 percent annually, from 1978-84 to 1990-92. Growth was strongest in animal products, followed by vegetables and fruits (appendix table 5).

The United States also receives about half of its agricultural imports, \$12 billion in 1992 (appendix table 6), from Western Hemisphere countries. U.S. imports from the Hemisphere increased 11 percent annually between 1970-72 and 1978-84 (appendix table 2), then rose 4 percent per

year between 1978-84 and 1990-92. Recent growth was strongest in cattle, fruits, grains, vegetables, and bananas. U.S. coffee and sugar import values appear to be declining (appendix table 7).

In 1991, U.S. agricultural exports to all destinations, valued at \$39 billion (U.S. definition) were almost equal to those by the other Western Hemisphere countries to all destinations, \$42 billion (FAO definition). Total 1991 U.S. agricultural imports of \$23 billion (U.S. definition) were also comparable to those by the remaining Western Hemisphere countries, \$22 billion (FAO definition).<sup>1</sup>

Almost half of total agricultural imports by other Western Hemisphere countries were from the United States in 1991. The United States was the destination for over one-quarter of agricultural exports by other Western Hemisphere countries in 1991 (appendix table 3).

Both the United States and the remainder of the Western Hemisphere obtain almost half of their agricultural imports from each other. Both are major net agricultural exporters, exporting almost twice as much as they import in value

<sup>1</sup> A few items such as tobacco products, distilled alcoholic beverages, and feed additives, are defined as agricultural commodities in FAO data, but are defined as nonagricultural in U.S. Census/Customs data. The U.S. data are preferred in describing U.S. trade trends.

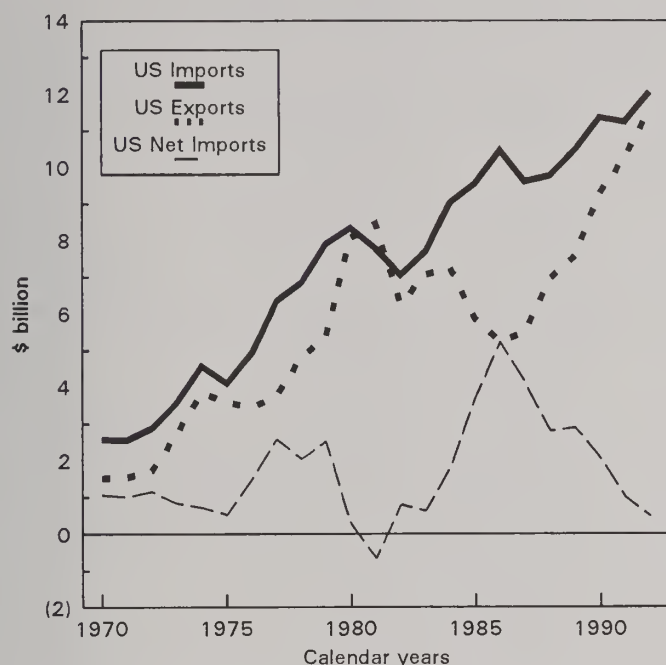
**Table 1.1**  
Inflation and debt service for selected Western Hemisphere countries, 1991

Country	Inflation	Total debt service
	Percent	Billion U.S. dollars
Mexico	22.7	12.2
Argentina	171.7	15.2
Brazil	410.6	44.1
Uruguay	100.7	0.9
Chile	21.8	6.0
Colombia	30.4	5.2
Ecuador	48.8	4.8
Peru	409.5	7.3
Venezuela	34.2	5.5

Source: The WEFA Group, December 1992.



Figure 1.1  
U.S. Agricultural Trade with the Western Hemisphere



terms (appendix tables 3, 5, and 7), and both ship about one-quarter of their exports to each other.

### Agricultural Trade Growing in the Western Hemisphere

The trends in U.S. exports are partly obscured by cyclical peaks, but those to Western Hemisphere countries are growing more than to the rest of the world. The commodities for which trade is increasing are often ones that both the United States and other Western Hemisphere countries export, for example, meats, fruits, and vegetables. Between 1979-1981 and 1990-1992, competitive imports (commodities that the United States also produces) from the Hemisphere grew by 7 percent annually, while total imports from the Hemisphere grew only 3 percent annually (appendix table 7). Part of the overlap in commodities imported and exported may result from different production times correlated with different latitudes, whether north or south of the equator, or in temperate and tropical zones. Friction between the trading partners can result from the overlap. The United States has been increasing its proportion of exports of high-value agricultural products.

Measured by the value of agricultural trade, the United States generally runs a trade surplus with respect to NAFTA and a deficit with MERCOSUR, the Andean Group, and the rest of the Hemisphere (table 1.2). The United States is usually a slight net importer from the Western Hemisphere, but U.S. exports have started to catch up in the last few years.

The NAFTA partners (Canada and Mexico) account for the largest share of U.S. exports in the Hemisphere. The Andean Group and the rest of the Hemisphere (Central Amer-

ica, Caribbean, and some countries of South America) also import substantial quantities of grains and feeds.

NAFTA countries are also the U.S. largest suppliers in the Hemisphere, providing animals and animal products, vegetables, and some tropical products, among other goods. The Andean Group exports bananas, coffee, and cut flowers to the United States. The rest-of-Hemisphere category is notable for the amount of bananas, other fruits, coffee, and sugar and products that it exports to the United States. MERCOSUR ships coffee, cocoa, beef and veal, fruit juices, and unmanufactured tobacco to the United States.

Intraregional trade, which accounted for only about 8 percent of total exports by CACM members (table 1.2) in 1960, reached 25 percent in 1970 and remained at that level until 1980. This large expansion in trade was due to trade diversion caused by preferential tariffs, rather than trade creation. Since 1983, intraregional trade has contracted, and currently accounts for only about 12 percent of all exports.

### Economic Crisis Brings Trade Liberalization and Reforms

For decades, the Latin American countries adopted import substitution industrialization (ISI) strategies based on protectionist policies aimed at industrialization through import substitution and state intervention to accelerate growth and promote diversification of production and exports.

In the late 1970's, Latin America experienced a series of internal and external shocks that led to a deep economic crisis from which the region has yet to fully recover. The major contributors to this crisis were: a decline in commodity prices that caused a steep fall in the value of the region's principal agricultural exports (appendix table 8); growth in foreign debt; economic stagnation; the oil price hike; and the sharp increase in international interest rates between 1980 and 1982.

Between 1980 and 1985, the region exhibited negative real income growth; by 1987, real incomes per capita had declined to levels of the early 1970's or before. In addition, the region has been afflicted by serious political and social tensions, including armed conflicts in Colombia, Venezuela, Peru, Ecuador, Bolivia, El Salvador, Guatemala, and Nicaragua.

The depth and persistence of the economic crisis prompted the region's policymakers to evaluate their past ISI strategy. Since the early 1980's, market-oriented policies have been adopted to foster the development of an open and competitive economy as the countries move toward economic integration and a greater participation in world trade (tables 1.2 and 1.3).

In 1985, Mexico introduced measures to stabilize the economy, reform foreign investment rules, and liberalize trade. In 1989, Colombia implemented its "Apertura Program", which included import tariff and export subsidy reductions, elimination of most import licensing requirements, creation of a Ministry of Foreign Trade to coordinate trade

Table 1.2  
Western Hemisphere trading blocks and preferential markets

Groups	Established / Aim	Member countries
Andean Group (AG), also known as the Andean Pact	Established May 1969 to promote economic integration, and freer trade among the members.	Bolivia, Colombia, Ecuador, Peru, Venezuela
Canada-Caribbean Commonwealth Program (CARIBCAN)	Established in 1985 as Canada's preferential trading scheme for the Commonwealth Caribbean.	Canada, Commonwealth Caribbean
Caribbean Basin Initiative (CBI)	Implemented in 1984. U.S. trade preference program for Caribbean and Central American nations.	United States and 24 Caribbean and Central American countries
Caribbean Community and Common Market (CARICOM)	Established July 1973 to promote free trade among member countries.	Antigua and Barbuda, The Bahamas, Barbados, Belize, Dominica, Grenada, Guyana, Jamaica, Montserrat, Saint Kitts and Nevis, Santa Lucia, San Vicente and Grenadines, Trinidad and Tobago
Central American Common Market (CACM)	Established 1960 to promote a common market.	Costa Rica, El Salvador, Guatemala, Honduras, Nicaragua
Chile-Mexico	Established 1991 to promote free trade.	Chile, Mexico
Economic Commission for Latin America and the Caribbean (ECLAC)	Established February 1948 to promote economic development as a regional commission of the UN's Economic and Social Council (ECOSOC).	Most Central, South American and Caribbean Countries, Mexico, Canada, France, Netherlands, Portugal, Spain, U.K., United States
Group of 3 (G-3)	Established October 1990 as a mechanism for policy coordination.	Colombia, Mexico, Venezuela
Latin American Economic System (LAES)	Established October 1975 to promote economic and social development through regional cooperation.	Argentina, Barbados, Bolivia, Brazil, Chile, Colombia, Costa Rica, Cuba, Dominican Republic, Ecuador, El Salvador, Grenada, Guatemala, Guyana, Haiti, Honduras, Jamaica, Mexico, Nicaragua, Panama, Paraguay, Peru, Suriname, Trinidad and Tobago, Uruguay, Venezuela
Latin American Integration Association (ALADI)	Established August 1980 to promote freer regional trade with preferential tariffs.	Argentina, Bolivia, Brazil, Chile, Colombia, Ecuador, Mexico, Paraguay, Peru, Uruguay, Venezuela
Southern Cone Common Market (MERCOSUR)	Established March 1991 for regional economic cooperation.	Argentina, Brazil, Paraguay, Uruguay
U.S. - Canada Free Trade Agreement (USCFTA)	Enacted January 1989 to promote freer regional trade.	Canada, United States
Andean Trade Preference Act (ATPA)	Authorized 1991 in part to encourage production of non-drug crops.	Bolivia, Colombia, Ecuador, Peru



**Table 1.3**  
**Latin American import regimes**

Country	Regime prior to trade liberalization	Trade liberalization in the 1980's
Argentina	All imports require certificate of necessity. Tariffs zero to 38% ad valorem on consumer goods, and raw materials; zero to 55% ad valorem on capital goods.	Liberalization in 1976-81, followed by new protection in response to crisis; intent to reliberalize since 1987. Tariffs reduced to maximum of 40 percent in 1989.
Brazil	Licensing requirements on almost all goods. Tariffs zero to 37% for raw materials and essentials not produced locally, 16-70% for equivalents of locally made items and 64-205% for nonessentials.	Beginning 1988, simplification of tariff structure and reduction of tariff rates. Import licenses not binding. Proposal for an average import tariff of 14.2% with a maximum duty of 35%.
Bolivia	License required for foodstuffs, live animals, manufactures and industrial inputs. Tariffs range from a minimum 2% on food imports to 120% on automobiles.	In 1985, replaced the complex, highly protective tariff system by a single uniform tariff of 20%, progressively reduced to 10%.
CARICOM	Enacted a Common External Tariff (CET) in 1973. Time of actual implementation varied by country. Four different tariff schedules and 16 different tariff rates, ranging from zero to 70%. The average tariff was 20%.	A proposal for a new CET seeks to reduce the tariff rate to 5, lower the maximum tariff to 45%, and introduce a minimum tariff of 5%.
Chile	Required 1 year permits to obtain foreign exchange for imports over \$500. Trade liberalized in the 1970s. Tariffs increased to 35% in response to 1982 crisis, later reduced to 20% ad-valorem.	Since October 1985, tariffs have been progressively reduced to 15% ad valorem. In addition, there is a variable import surtax for wheat and oilseeds.
CACM	Highly protective tariff rates. In Costa Rica, for example, several rates exceeded 1,000%. A CET enacted in 1986 included effective protection rates between 50% and 150%, which reduced the tariffs and the dispersion.	Reformed the CET in 1987, reducing the mean external tariff from 53% to 26%, and converting specific tariffs to ad valorem. In 1987 Costa Rica further reduced average tariff to 16%. Costa Rica joined GATT in 1990.
Colombia	Prior licenses required on 80% of imports. Tariffs of 5-20% for capital goods, 180% for automobiles. Average tariff of 30%.	Gradual trade liberalization since 1980. Radical import liberalization program adopted in 1989. Tariff reduction has been accelerated and there is a proposal to reduce prior licensing.
Mexico	Licensing requirements for most imports, except "free zone" imports. In 1985, import licensing covered 92 percent of production. Tariffs 50-100% for consumer goods; 30-40% for products competitive with local industry. For capital goods, 40-60% for items produced locally; 20-30% if production likely; 5-10% if unlikely.	Beginning in 1985, phase-out of non-tariff barriers, especially licensing, and reduction of tariffs. Joined GATT in 1986.
Peru	Import licenses required for products produced by state-owned firms. Tariffs 10% ad valorem for industrial raw materials; 30% for intermediate goods; 45% for finished goods; and 60% for luxury goods.	Since 1983, a 10% surcharge has been imposed on imports to reduce trade deficit. In addition, local-content requirements and/or import substitution rules have been used.
Venezuela	Widespread import licensing. Average tariff 35-40%, up to 100% for luxury items.	Adopted an import liberalization program in 1989. Abolished most import prohibitions and tariffs reduced to maximum of 80%.

Source: Business Latin America, May 1983. IIE, Latin American Adjustment, April 1990. World Bank Documents.

policy, and privatization of government-owned enterprises. Peru reduced tariffs to an average rate of 15 percent. Venezuela and Bolivia have made notable progress in lowering barriers to trade. Bolivia initiated a reform process in 1985 and eliminated the price controls on all traded commodities, except sugar. Bolivia's tariff duties are the lowest of any Andean Group country.

Brazil has been eliminating restrictive import-licensing practices and nontariff barriers, such as import quotas, and privatizing its industries; however, progress is slow. Argentina is converting to a free-market economy in order to expand production and export, after years of tight controls. In 1989, the government freed the exchange rate (but fixed it again in 1991), and by 1991 had eliminated all import quotas. Chile has adopted market-oriented economic policies for nearly two decades.

In 1986, the CACM members liberalized trade policies, including a revised common external tariff with reduced rates, elimination of specific tariffs, and, for some countries, additional reforms at the national levels. Costa Rica and Guatemala have progressed furthest in designing and implementing concrete trade liberalization measures. Both economies have implemented a flexible exchange rate program and rely least on foreign exchange controls. Costa Rica began a broad-based structural adjustment program in 1985, and is now reducing external tariff protection. Guatemala introduced a successful stabilization program in 1986, and is preparing to initiate trade reforms similar to the Costa Rican ones. El Salvador initiated a comprehensive adjustment program in 1989, including tax reforms, tariff reduction and unification, and a more flexible exchange rate management, designed to place the economy on an outward-oriented growth path.

### **Economic Integration and Preferential Markets Increase**

Many Latin American countries have been moving toward more open economies by lowering the above-mentioned barriers (table 1.3). Latin America has also developed a substantial number of regional groupings of countries, or trade blocks, which promise various benefits (table 1.2).

Four of the initiatives involve the United States; NAFTA, the Enterprise for the Americas Initiative (EAI), the Caribbean Basin Initiative (CBI), and the Andean Trade Preference Act (ATPA) (table 1.2). The NAFTA is intended to reduce trade barriers among the United States, Canada, and Mexico. The EAI, still under development, is intended to encourage trade liberalization, reduce developing country debt, and increase foreign investment in developing countries. The trade proposal supports a Hemisphere-wide free trade zone. The relative size of the Latin American market is suggested by a population of about 440 million, and aggregate GDP of over \$1.0 trillion (appendix table 1).

The United States implemented two trade preference programs for the Latin American region. The first, the CBI, was started in 1984 for 24 countries of the Caribbean and Central America regions. The second preference program, the ATPA, was authorized in 1991 to help fight drug production in Latin America by increasing output of other crops. It was implemented in July 1992 for Bolivia and Colombia, but has not yet been implemented for Ecuador and Peru. The ATPA expires in 2001.

There are several regional trading blocks not associated with the United States including the MERCOSUR ("the Common Market of the South") and the Andean Group (also known as the Andean Pact). The Caribbean Community and Common Market (CARICOM) consists of Caribbean countries formerly under British rule. Canada maintains the Canada-Caribbean Commonwealth program (CARIBCAN) to provide duty-free access for commodities produced in 19 Commonwealth countries and territories.

### **References**

- CEPAL (1992). *Notas Sobre la Economía y El Desarrollo: Preliminary Overview of the Latin American and Caribbean Economy, 1992*. No. 537/538. December.
- CEPAL (1991). *Statistical Yearbook for Latin America and the Caribbean*.



## Western Hemisphere Trade in High-Value Agricultural Products

*The increasing importance of high-value agricultural product (HVP) trade is a growing trend in the Western Hemisphere, as well as globally. Reducing trade barriers through economic reform and trade liberalization will allow Western Hemisphere countries to expand trade in HVP. Increased beef feeder cattle trade among the United States, Canada, and Mexico is an example of the benefits all three countries could gain as trade increases. [W. Terry Disney and Bob House]*

Interest and trade in high-value agricultural products (HVP) have flourished in the past dozen years. Declining real prices of bulk or low-value agricultural products (LVP), concerns over foreign exchange and trade imbalances, and desires to exploit comparative advantage all played a part in favoring HVP over LVP trade. The future mix of HVP versus LVP exports and imports for the Western Hemisphere will be influenced by historic trade patterns and by emerging technological, economic, and policy forces which shift these patterns.

Freer trade in agricultural products would be one result of successful GATT and NAFTA agreements, which reduce trade barriers and expand trade opportunities. Increased reliance on regional trading arrangements, such as NAFTA and the proposed free trade agreement between Venezuela and Colombia, would enlarge trade opportunities among members of such agreements.

Comparing HVP/LVP trade shares in 1980 and 1990 provides a snapshot of shifts and trends in trade mixes for the major trading countries of the Western Hemisphere.

### High-Value Product Trade Grew Globally

In 1990, 80 percent of world agricultural trade value was in HVP, up from 72 percent in 1980. HVL trade was 26.4 percent of total trade in 1990, up from 23 percent in 1980.

The United States closely follows the Netherlands, France, and Germany as the largest individual country exporters of HVP (table 2.1). Other important Western Hemisphere exporters of HVP are Brazil, Mexico, Argentina, and Canada. Leading importers of agricultural HVP are Italy, Japan, Germany, France, and the United Kingdom, followed by the United States, Canada, and Mexico (table 2.2).

The United States leads the world in LVP exports, and in 1990, accounted for over 30 percent (table 2.1). Other Western Hemisphere countries that are important world exporters of LVP include Canada, Argentina, and Brazil. Canada and Mexico are the only major Western Hemisphere importers of LVP (table 2.2).

High-value agricultural products (HVP) include any traded commodity that incorporates a value-added component into its price. The distinction between HVP and low-value agricultural products (LVP) is based on the value added to the raw bulk agricultural product once it leaves the farm gate. With this approach, all livestock and dairy products, including live animals, are HVP since they are considered value-added alternatives to marketing raw bulk feed grains and forages. Processed grains and oilseeds are also considered HVP. Fresh fruits and vegetables, although marketed in their raw form, are considered to be HVP due to their perishable nature and associated high transportation and marketing costs. Raw bulk agricultural products such as corn, wheat, soybeans, rice, and cotton, are considered LVP. These definitions identify product trade categories:

HVP—high-value agricultural products

HVL—high-value livestock products;

HVO—other high-value agricultural products;

LVP—low-value agricultural products or bulk commodities.

### Western Hemisphere HVP/LVP Trade Also Increased

From 1980 to 1990, Western Hemisphere agricultural product trade grew \$7.4 billion. Over this same period, HVP exports from Western Hemisphere countries increased \$13.9 billion, while LVP exports declined \$7.6 billion. Agricultural imports of Western Hemisphere countries were also up, approximately \$10 billion from 1980 to 1990. LVP imports fell \$2.9 billion, while HVP imports gained \$12.8 billion.

HVP/LVP trade shares and levels tended to shift in favor of HVP across North, Central, and South America between 1980 and 1990 (figure 2.1, table 2.3). HVL exports grew from 11 to 17 percent of North American total exports of

agricultural products. Similarly, HVO exports increased from 27 to 39 percent. North America's LVP share of agricultural exports declined from 62 to 42 percent by value. Little change occurred in the export patterns of South and Central American countries. As in 1980, the 1990 South American export values were approximately 12 percent

**Table 2.1**  
Leading agricultural exporters, 1990

Country	Value and Rank <sup>1</sup>			
	Total	HVL <sup>2</sup>	HVO	LVP
----- Billion U.S. dollars -----				
United States	45.2 (1)	7.1 (4)	17.9 (2)	19.6 (1)
France	33.4 (2)	9.5 (2)	15.9 (2)	7.4 (2)
Netherlands	30.9 (3)	11.8 (1)	18.0 (1)	0.9 (12)
Fed. Rep. Germany	19.7 (4)	7.7 (3)	10.3 (4)	1.2 (11)
United Kingdom	12.7 (5)	3.3	8.0 (6)	1.3 (9)
.				
Canada	9.2 (10)	2.3 (11)	2.3	4.3 (4)
Brazil	8.9 (11)	0.7	6.1	2.0 (7)
Argentina	6.8 (14)	1.2	3.2	2.4 (6)
World	324.6	85.6	170.8	64.1

1 Countries without a ranking are not among the top 15 in that product category.

2 HVL is high-value livestock product, HVO is other high-value product, and LVP is low-value product.

Source: FAO

**Table 2.2**  
Leading agricultural importers, 1990

Country	Value and Rank <sup>1</sup>			
	Total	HVL <sup>2</sup>	HVO <sup>2</sup>	LVP <sup>2</sup>
----- Billion U.S. dollars -----				
Fed. Rep. Germany	37.2 (1)	9.7 (2)	23.1 (1)	3.7 (4)
Japan	28.7 (2)	7.8 (3)	11.6 (5)	8.8 (2)
United States	27.1 (3)	5.7 (6)	18.9 (2)	2.3 (8)
Italy	23.7 (4)	11.4 (1)	8.9 (7)	3.1 (6)
United Kingdom	23.0 (5)	6.6 (5)	13.5 (4)	2.4 (7)
France	22.6 (6)	6.8 (4)	14.3 (3)	1.1
USSR	19.6 (7)	3.2 (9)	6.1 (10)	10.3 (1)
.				
Canada	7.1	1.4	5.0 (11)	0.6
Mexico	4.6	1.5	1.8	1.4
World	353.4	91.3	185.6	72.3

1 Countries without a ranking are not among the top 15 that product category.

2 HVL is high-value livestock product, HVO is other high-value product, and LVP is low-value product.

Source: FAO

HVL, 63 percent HVO, and 25 percent LVP. Central America remains the most dependent on LVP exports, exporting 57 percent of its total agricultural product as LVP.

HVP shares of agricultural imports increased over the 1980-90 period for North, South, and Central America. South American HVL imports rose from 15 to 20 percent of total agricultural imports, while HVO increased from 41 to 48 percent. In Central America, the HVL proportion of imports increased slightly at the expense of HVO, which were down 1 percent from 1980. In North America, imports of HVP trended consistently upward (the HVL share up 3 percent over 1980 and the HVO share up 5 percent).

### Comparison of Major Western Hemisphere Trading Countries

Although the United States increased the HVP share of its total agricultural exports considerably after 1980, U.S. export value in 1990 was 43 percent LVP (table 2.3). Similarly, 47 percent of Canada's export value was LVP. By contrast, only 6 percent of Mexico's exports were LVP. Instead, 77 percent of Mexican agricultural exports in 1990 were HVO such as fresh fruits and vegetables.

The LVP share of agricultural exports is considerably lower for major South American exporters (Argentina, and Brazil) than for North American exporters. Argentina exported 35 percent of its value as LVP, but increased the share of HVO to 47 percent. At the same time, Argentina decreased its reliance on livestock product exports from a 25-percent share in 1980 to 17 percent in 1990. Brazil relied on LVP exports for 23 percent of total export value, and showed little change in export patterns over the 80's.

Brazil has become less dependent on LVP imports since 1980. Imports of all agricultural products are down from \$2.47 billion in 1980 to \$2.1 billion. Brazil did, however, show considerable growth in HVL imports from 1980 to 1990 (up 140 percent). Venezuelan imports of agricultural products fell from \$1.72 billion in 1980 to \$740 million in 1990, because of a collapse in purchasing power due to weakened oil prices and tighter international lending constraints between 1980 and 1990.

### Technology, Economic, and Policy Factors Ease Trade Barriers

Recent events in global technology, economic climate, and trade policy are easing limitations to the free trade of agricultural products. These forces could substantially change Western Hemisphere trade patterns.

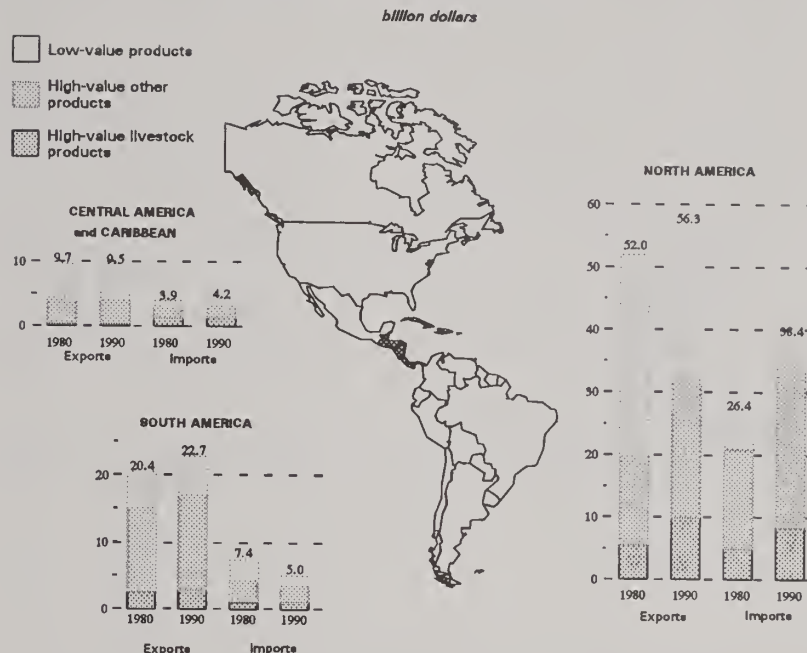
#### Technological Barriers Are Falling

The biggest obstacles to growth in HVP trade in the Western Hemisphere are the geographic separation of supply and demand and the perishable nature of some of these products.

Frozen and highly processed meat has been the only economical alternative available for Western Hemisphere countries to market most HVL products outside of the Hemisphere. Markets for beef products within the Hemisphere



Figure 2.1—Western Hemisphere  
High- and Low-Value Agricultural Trade



are limited by demand and nontariff barriers such as sanitary restrictions to prevent the spread of hoof and mouth disease.

Exporting chilled meats with extended shelf life is becoming commercially feasible and could create new trade opportunities for the United States and other exporters of livestock products. Also, the emergence of intermodal refrigerated containers for chilled meat and the increased international acceptance of vacuum-packed and boxed meat have decreased handling costs and extended the shelf life of these exported products.<sup>1</sup>

#### ***Growing Domestic Economies Will Boost HVP Trade***

The economic climate within individual countries of the Western Hemisphere dramatically affects trade patterns. In general, as incomes expand, tastes and demand for a greater variety of more highly processed products grows. Economic reforms should spur growth in the demand for these products.

U.S. and Canadian export mix patterns could continue to shift from LVP toward HVP. Reduced costs due to falling real wage rates, and other factors will continue to boost the HVP share of total agricultural exports. HVP import growth in the 1990's is not expected to continue at the rates of the 1980's without substantial Brazilian economic growth. Venezuela has always been a grain-deficit area and LVP imports will probably continue as a large percentage of their total agricultural products. Argentina is expected to continue exporting more HVP and less LVP.

#### ***Liberalized World Trade Would Favor Increased HVP Trade***

World trade barriers to HVP imports are being reduced, and foreign exchange shortages partially explain the mix of agricultural products by some major world importers (table 2.2).

A successful GATT agreement could accelerate the trend toward freer trade in all HVP by reducing barriers. At the same time, a GATT could mean countries that have historically relied heavily on LVP exports, such as the United States, may see their competitive advantage in the production of LVP increase. For example, if the EC and other recent grain surplus producers are not as competitive in a world grain market less distorted by government subsidies.

The NAFTA agreement--if ratified--will likely facilitate trade among North American countries. In the beef industry, for example, maximizing comparative advantage could shift trade patterns in North America, potentially benefiting consumers and producers. The removal of barriers to free trade in livestock would mean a U.S. beef sector that depends more on both Canada and Mexico as suppliers of lightweight feeder calves. If feeder calves are imported from Mexico or Canada, rather than produced domestically, they can be grazed to heavier weights in the United States on higher quality forages than Mexican or Canadian pastures. Such increased reliance on lightweight feeder calves will allow U.S. producers to add value at the point in the production cycle where they have the comparative advantage (better quality forages necessary for efficient weight gains). At the same time, Canada and Mexico would be specializing in production where they have a comparative advantage (readily available lower quality forages necessary for mother cow maintenance) for export to the United States.

<sup>1</sup> Shipping containers that house the product from point of origin to final destination without unloading or repackaging.

Table 2.3  
A comparison of major Western Hemisphere trading countries, 1980/1990

Country	Type <sup>1</sup>	Exports		Imports		Exports		Imports	
		1980	1990	1980	1990	1980	1990	1980	1990
----- Billion U.S. dollars -----									
----- Percent of total <sup>2</sup> -----									
Canada	HVL	1.30	2.33	0.83	1.37	0.18	0.25	0.18	0.19
	HVO	1.37	2.37	2.97	5.03	0.19	0.26	0.64	0.71
	LVP	4.52	4.34	0.91	0.59	0.64	0.47	0.20	0.08
United States	HVL	4.19	7.14	3.72	5.65	0.10	0.16	0.20	0.21
	HVO	11.54	17.89	12.27	18.90	0.27	0.40	0.67	0.70
	LVP	27.31	19.61	2.58	2.26	0.64	0.43	0.14	0.08
Mexico	HVL	0.10	0.43	0.49	1.45	0.06	0.16	0.15	0.31
	HVO	1.29	2.05	0.71	1.77	0.71	0.77	0.22	0.38
	LVP	0.44	0.16	1.97	1.38	0.24	0.06	0.62	0.30
Venezuela	HVL	0.00	0.06	0.31	0.07	0.05	0.20	0.18	0.09
	HVO	0.07	0.20	0.70	0.41	0.93	0.66	0.41	0.52
	LVP	0.00	0.04	0.71	0.31	0.02	0.13	0.41	0.39
Argentina	HVL	1.37	1.17	0.13	0.02	0.25	0.17	0.18	0.09
	HVO	1.50	3.22	0.53	0.18	0.27	0.47	0.77	0.82
	LVP	2.65	2.42	0.03	0.02	0.48	0.35	0.05	0.09
Brazil	HVL	0.62	0.67	0.28	0.67	0.07	0.08	0.11	0.32
	HVO	6.97	6.14	0.68	0.79	0.75	0.69	0.28	0.38
	LVP	1.73	2.05	1.51	0.64	0.19	0.23	0.61	0.31
North America	HVL	5.59	9.90	5.03	8.47	0.11	0.17	0.19	0.22
	HVO	14.19	22.31	15.94	25.70	0.27	0.39	0.61	0.66
	LVP	32.24	24.11	5.45	4.22	0.62	0.42	0.21	0.11
Central America/ Caribbean	HVL	0.41	0.28	1.18	1.39	0.04	0.03	0.30	0.33
	HVO	3.94	3.83	1.83	1.96	0.40	0.40	0.47	0.46
	LVP	5.38	5.39	0.92	0.89	0.55	0.57	0.24	0.21
South America	HVL	2.57	2.80	1.11	1.01	0.13	0.12	0.15	0.20
	HVO	12.68	14.25	3.05	2.43	0.62	0.63	0.41	0.48
	LVP	5.12	5.65	3.27	1.59	0.25	0.25	0.44	0.32

1 HVL is high-value livestock product, HVO is other high-value product, and LVP is low-value product.

2 Shares truncated to second decimal, therefore may not add to 1.

Source: FAO

## Summary

HVP versus LVP trade is particularly important with the Western Hemisphere perhaps poised for increased reliance on regional trading arrangements such as NAFTA and the proposed trade agreement between Venezuela and Colombia. South America has historically been a big net exporter of both HVP and LVP. Central America has been a net exporter of HVO and LVP, but a net importer of HVL (due mainly to Caribbean imports of HVL). North America is far and away a net exporter of LVP, a net importer of HVO, and in 1990 was a slight net exporter of HVL. Aggregating the 1990 trade numbers to a hemisphere level, however, we see that the Western Hemisphere as a whole is a net exporter in every category of agricultural products.

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## References

- Capps, O., S. Fuller, and J. Nichols (1988). "Assessing Opportunities in Food and Fiber Processing and Distribution." *American Journal of Agricultural Economics* 70:462-468.
- Cesal, Lon (1992). "U.S. International Economic Policy: Stay-the-Course or Alter-the Course." Discussion Paper Series No. FAP92-03. National Center for Food and Agricultural Policy, Washington, D.C.



Food & Agricultural Organization of the United Nations (1990). *FAO Yearbook*. FAO Statistics Series No. 102, Volume 44.

Hayes, Dermot J. (1992) *Opportunities for the U.S. Livestock Sector*. Unpublished overheads from presentation at Livestock Industry Conference, Des Moines, Iowa.

Hayes, Dermot J. "The Impact of Trade Arrangements on Farm Structure and Food Demand: A U.S. Perspective." Center for Agricultural and Rural Development, Iowa State University, Ames, Iowa, USA.

Lee, J. Jr. (1988). "Trends in World Agriculture and Trade in High-Value Food Products." *Food Technology*. September, pp. 119-127.

Lee Jung-Hee, David M. Henneberry, and David Pyles (1991). "An Analysis of Value-Added Agricultural Ex-

ports to Middle-Income Developing Countries: The Case of Wheat and Beef Products." *Southern Journal of Agricultural Economics*. December, pp 141-154.

MacDonald, Stephen and John E. Lee, Jr. (1992). "Assessing the International Competitiveness of the United States Food Sector." Paper presented at the International Agricultural Trade Research Consortium's Symposium on Competitiveness in International Food Markets. Annapolis, MD. August.

Monke, Eric (1986). "High-Value Products: Should the U.S. Add More Value to its Exports?" Department of Agriculture Economics, University of Arizona.

Schluter, Gerald E., and William Edmondson (1989). "Exporting Processed Instead of Raw Agriculture Products." ERS Staff Report No. AGES89-58. Economic Research Service.

*Agricultural and Economic Situation and Outlook (cont.)*

## Policy Reform Continues To Open Markets in the Western Hemisphere

*Western Hemisphere governments have been reforming their agricultural and, in some cases, trade policies to deal with overwhelming national debt and other economic issues, especially inflation. Reforms in the United States and Canada were not as extensive as those of Mexico and the large agricultural producers in South America where agricultural sectors are becoming more market oriented.*  
[Susan L. Pollack]

Agricultural and trade reforms throughout the Western Hemisphere have been motivated by the different governments responding to increasingly burdensome national debts, and the cost of maintaining traditional agricultural policies. The reforms are also in response to concern for available foreign markets for a country's agricultural goods, especially since the creation of trading blocs throughout the world, and to the inability of the Uruguay Round of the GATT to reach agreement. Latin American countries have also been trying to reduce the continuing problem of extremely high inflation.<sup>1</sup>

### United States and Canada React to National Deficits

The United States and Canada both face large national government deficits. The United States has been reducing Federal spending for programs, including farm programs, to re-

duce the deficit. The emphasis on finding new ways to cut the national deficit continues under the Clinton administration. However, it is still too early to know how deficit reduction plans will affect agriculture. Under one proposal, the administration plans to increase the percentage of base acres that do not receive payments from 15 to 25 percent, eliminating 0/92 and 50/92 programs.

In 1991, Canada revised legislation to make farm programs more responsive to producers. The federal government established two new income stabilization programs, the Gross Revenue Insurance Plan (GRIP) and the Net Income Stabilization Account (NISA). Both programs are administered by the provincial governments and operations vary across provinces. GRIP provides coverage for grains, oilseeds, and pulses. NISA also includes some horticultural crops. GRIP provides crop insurance and revenue protection.

Another part of the reorganization eliminated costly ad hoc programs that raised farm income for grain and oilseed producers. In 1992, budgetary pressures eliminated these programs. Other cost-cutting measures by the Canadian Gov-

<sup>1</sup> This article provides a general summary of major policy changes in some Western Hemisphere countries. More detail is provided in the country and special articles included in this report. A complete listing of all Hemisphere trade agreements can be found in table 1.2.

ernment included reducing dairy subsidies, and requiring producers to assume a greater share of freight payments subsidized by the Western Grain Transportation Act.

### **Chile's Agriculture Policies Successful**

Chile's agriculture sector is divided into the free-market sector, with no government intervention, and a protected sector, requiring active government intervention. The free-market sector includes the export industries of fruit, vegetable, freshwater fish, forestry products, and seeds. The protected sector includes the basic staples, grains, sugarbeets, oilseeds (oil and meal), dairy products, and cotton.

The Chilean Government sets an annual price band to protect wheat, sugar, and vegetable oils from imports. Domestic prices are maintained within the band by either adding an additional tariff onto Chile's uniform tariff level if an import price for wheat, sugar, or vegetable oils falls below the lower limit of the band set for that commodity, or by lowering the uniform tariff if an import price is above the upper limit of the set band. Because of its success, the agricultural policies have not changed in recent years as they have throughout much of the rest of Latin America, in spite of changes in administrations.

Chile has few trade barriers other than the price bands. The country's uniform import tariff rate since June 1991 is 11 percent, with preferential rates set for ALADI (Latin American Integration Association) member nations. Chile signed a free-trade agreement with Mexico in 1991 and one with Venezuela in 1993. Chile's trade regulations cover phytosanitary, animal health, and pesticides. The government often follows the U.S. Environmental Protection Agency's guidelines for setting such regulations.

### **Mexico Undertakes Major Reforms**

The Mexican Government has been overhauling its agricultural sector over the past few years. In an effort toward market pricing, all guaranteed prices were removed in 1989, except for dry edible beans and corn. Other basic commodities are using "agreement prices" to set producer prices. Under the agreement system, producers and processors, with the government acting as a mediator, reach a price consensus to hold down inflation. Indirect subsidies for inputs, such as water, electricity, crop insurance, and seeds, have been reduced. Mexico also is privatizing several government-owned agricultural institutions, such as the fertilizer monopoly, FERTIMEX, and the crop insurance company, ANAGSA.

In 1992, the government began to overhaul the agricultural credit system, and a new land-reform program gave communal farmers legal title to land to encourage investments. In addition, Mexico began to reform its trade policies in 1985 to become eligible to join the GATT. The government removed licensing requirements for many commodities, and converted quotas to tariffs.

While Mexico continued its trade liberalization program, it negotiated the NAFTA with the United States and Canada. Mexico also signed a free-trade agreement with Chile in 1991, and is negotiating an agreement with Venezuela and

Colombia, and another one with Central American countries.

### **Argentina Also Makes Changes in Agriculture**

To cut federal spending and control inflation the Carlos Menem administration elected in 1989, set up a broad program of privatization, deregulation, and subsidy reduction. The government abolished the Grain and Meat Boards, as well as minor agencies for sugar and tobacco in 1991. Government-owned enterprises, including grain elevators, are being sold to the private sector to operate more efficiently.

In the past, Argentina protected its agricultural sector through high import tariffs, inspection fees, and registration systems. It also had export taxes on many agricultural commodities. Oilseeds are the only commodities to still have an export tax. The government placed a 6-percent tax on raw oilseed exports and no tax on the processed products, as a way of promoting the country's processing industry and the export of HVP.

In the early 1990's, the import tariff schedule was simplified into a three-tier system, with rates of 5, 13, and 22 percent. Most agricultural products have tariffs of less than 10 percent. Government involvement in importing is limited to requiring phytosanitary certificates for most agricultural goods.

In 1991, Argentina signed an agreement with Brazil, Paraguay, and Uruguay to create a regional common market, MERCOSUR, by the end of 1994.

### **Venezuelan Economy Opens**

The Venezuelan Government began reducing its involvement in the various sectors of the economy in 1989, including eliminating price controls (except for specific, basic agricultural goods) and privatizing many state-owned enterprises, such as commercial banks, cement companies, sugar mills, and hotels. In 1991, the government eliminated the monopoly marketing powers of the Cocoa and Coffee Boards. Producer support now comes mostly through rural investments, such as roads and irrigation systems. The government also provides subsidies for credit, taxes, electricity, fertilizer, and animal health programs.

Venezuela reformed its trade policies as a prerequisite to joining the GATT in 1990. The tariff schedule was revised in 1992 to four levels, from 5 to 20 percent, depending on the amount of processing. Quantitative restrictions were eliminated for all sectors, except feed grains, soybeans, soymeal, poultry, and pork products. Quotas for sorghum and corn were removed in 1992, however, they are still subject to an import duty that averages about 15 percent. The government maintains a price band program to protect its sugar, food grains, dairy products, oilseeds, and oilseed products from import competition.

Venezuela joined the Andean Group in 1973, which calls for establishing a common agricultural policy among the member countries and a common external tariff on all im-



ports. Elimination of almost all internal tariffs is planned for 1995. An interim tariff reduction with a 15-percent maximum is scheduled for January 1, 1994.

### **Brazil Liberalizes the Agricultural Sector**

The domestic agricultural policy reforms implemented in 1990 by Brazil made the agricultural sector more market-oriented. Brazil is privatizing many state-owned companies that controlled production, storage, and marketing of various agricultural products, and the Sugar and Alcohol Institute and the Brazilian Coffee Institute were eliminated.

The Brazilian Government ended its wheat production and marketing monopoly and wheat is now imported by private firms. However, the government continues to act as a guarantor of the national wheat supply by offering a minimum support price and subsidized production credit. The government also maintains buffer stocks for other basic food staples, rice, corn, and dry beans. Brazil continues to maintain price supports for these basic foods. Minimum prices are established prior to planting to reflect production goals.

The Collor administration also modified its trade policy under its economic reform package of 1990. It established a tariff schedule to be phased in by 1994 that sets a range of 0 to 35 percent. Import duties and licenses are still required for most grain imports, though licenses are now issued automatically and are not used to control trade. Also, to protect its domestic agricultural sector from subsidized imports, the farm bill includes provisions to establish a system of countervailing duties. Brazil has levied these duties against subsidized imports of EC dairy products and U.S. wheat, and plans to continue to use them more aggressively in the near future.

Brazil maintains a special, long-term wheat agreement that guarantees Argentina import preference and a lower tariff rate. Preferential treatment is also granted to other MERCOSUR countries. The future of many of Collor's reforms are in question since his resignation at the end of 1992.

### **Other Latin American Countries and the Caribbean in Transition**

The economies of several Latin American countries are in transition. Civil wars in Nicaragua and El Salvador only recently ended. While both countries are pursuing increased trade with the United States, their agricultural sectors are still recovering. Both new governments tend to be more market-oriented than their predecessors, but retain some protectionist measures.

The CACM was created in 1961 to promote free trade among member nations--Costa Rica, El Salvador, Guatemala, Honduras, and Nicaragua. In the nineties, along with expanding trade within the region, CACM leaders are also improving regional infrastructure. All the Central American countries are contracting parties to the GATT, except Panama and Honduras, which are in the process of applying for membership.

The Caribbean countries did not implement agricultural reform policies in the early nineties. Because of the sizes of the countries, and the importance of agriculture for export earnings, most maintain measures to protect their agricultural industries.

In 1984, the United States signed the Caribbean Basin Economic Recovery Act, better known as the Caribbean Basin Initiative (CBI), which gives all Central American and Caribbean countries, except Cuba and the French West Indies, duty-free access for CBI-produced products into the United States. The CBI program, which became permanent in 1990, is an attempt by the United States to help stimulate exports of nontraditional goods by the participating countries. (Traditional agricultural exports include bananas, coffee, tobacco, sugar, and beef.) All agricultural goods from these countries can enter the United States duty free. Caribbean countries also receive preferential treatment from other countries, including Canada, and from the EC under the Lome Convention.

The English-speaking nations of the Caribbean also are part of CARICOM, whose goals are similar to other common markets--open trade for participating countries with common external tariffs.

Colombia, Bolivia, Ecuador, Peru, Paraguay, and Uruguay face the same economic problems as Latin America; some have experienced hyperinflation and very large debts. In response to these problems, many countries reduced government subsidies and price controls and opened their markets to increase trade. Many of these countries have made substantial progress in reducing inflation. Some of these governments, such as Peru's, are still in transition and their final policies are unclear. (These countries, along with Argentina, Brazil, Chile, Mexico, and Venezuela comprise ALADI.)

### **Summary**

During the late eighties or early nineties, all the major agriculture-producing countries of the Western Hemisphere made adjustments to their agriculture policies, and in some cases, their trade policies, in order to deal with overwhelming national debt burdens, and other macroeconomic problems, in particular high inflation, economic restructuring, and expanding access to world markets. The policy changes taken by the two biggest and most developed countries in the hemisphere, the United States and Canada, were not as extensive as those of the countries to their south.

The Latin American countries, on the other hand, restructured their agriculture and trade policies extensively. To make agriculture more market oriented, the big agriculture producers removed or reduced price support programs, began selling off many government-owned enterprises, and reduced input subsidies. To become more competitive in world markets, most of these countries began reducing tariffs and eliminating other trade barriers, such as licensing requirements, quotas, and government control of imports.

## References

Cesal, Lon (1992). "Chile: A Latin American Success Story." *Agricultural Outlook*. November.

United Nations Food and Agriculture Organization, Agrostat database.

U.S. Department of Agriculture, Foreign Agriculture Service, Various Annual Situation Reports from 1991 and 1992.

United States International Trade Commission, *U.S. Market Access in Latin America: Recent Liberalization Measures and Remaining Barriers (With a Special Case Study on Chile)*. USITC Publication 2521, Investigation No. 332-318.

Williamson, John (1990). *Latin American Adjustment: How Much Has Happened?*. April.

## *Agricultural and Economic Situation and Outlook (cont.)*

### United States

*U.S. HVP exports reached a record \$23.2 billion in FY 1992. Livestock and horticultural products led the increase as demand strengthened and trade barriers declined. HVP exports should capture an increasing share of the value of total exports, as export prices of LVP continue to fall. [Robert Green and Steve Martinez]*

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Large U.S. crop production in 1992 increased supplies for domestic and export use and carryover stocks for the 1992/93 marketing year (figure 3.1). There has been a steady increase in the domestic use of crops over the past decade, while the export of crops has been variable. Resolution of Russia's debt problem and successful conclusion of trade negotiations could brighten the outlook for U.S. exports.

In 1992, livestock production remained large and pork output reached record levels. Red meat and poultry exports continue to grow, with broilers and turkeys reaching unprecedented levels. For 1993, livestock and poultry output and exports should increase as prices remain competitive on the international market and purchasing power of importers grows.

Total agricultural exports in 1992 nearly matched 1981's record of \$43.3 billion and the 1993 forecast is for about the same. Thus the agricultural trade balance should remain steady.

#### Economic Indicators Point to Rebounding Economy

Real gross domestic product (GDP) rose by 2.1 percent in 1992, the largest increase since 1989 (figure 3.2). The consumer price index (CPI) edged up by only 3 percent in 1992, the smallest inflation increase since 1986. Low interest rates in 1992 helped to spur investment which led the growth in GDP. In the fourth quarter of 1992, real GDP rose 4.7 percent, the largest quarterly increase in 5 years. The bank prime interest rate remained at 6 percent in the fourth quarter. The U.S. dollar is near record lows against the yen. On a trade-weighted basis, the dollar has strengthened since the spring of 1992.

GDP is likely to grow 2 to 3 percent in 1993. The administration expects the unemployment rate to fall by only 0.3 percent from the 7.4-percent rate posted in 1992, the highest rate since 1984. The inflation rate will likely remain low due to excess industrial capacity, relatively high unemployment in labor markets, and a monetary policy aimed at containing inflation.

There are two primary downside risks to U.S. growth in 1993: consumer retrenchment and sluggish exports. Some of the increase in consumer spending has come at the expense of savings. If consumers attempt to rebuild savings and income continues to grow sluggishly, the economy is likely to sputter again. As for the second risk, economic slowdowns in Germany and Japan are likely to slow export growth considerably this year. Growth is also expected to be relatively slow in Canada and the United Kingdom. If the slowdowns in those countries are worse than expected or their recessions spread elsewhere, export growth will slide further, slowing the U.S. economic expansion.

#### Input Costs To Remain Steady

Production expenses fell in 1991 and 1992 due mostly to declining feeder livestock and fuel prices. Low inflation and interest rates should keep increases in agricultural input costs modest in 1993. While feed prices and expenses are expected to be down in 1993, all other major expenses are likely to rise. Production costs for major field crops may change only slightly from 1992.

Fertilizer prices are expected to remain stable or increase slightly during 1993 compared to 1992. These prices will reflect fertilizer production costs and demand prospects from the 1993 planted acreage intentions.



## Policy Developments

Although the fast-track authority expired June 1, 1993, the GATT Uruguay Round Negotiations continue. President Clinton has issued statements in support of the ongoing free trade negotiations. However, on February 17, he said that the United States will insist on "fair trade rules" in international markets as part of a national economic strategy to expand trade. President Clinton told Congress that the strategy will include the successful completion of the Uruguay Round of multinational trade talks. Congress has started the process of extending the fast-track authority, however, the details of the extension had not been worked out by late June.

On November 20, 1992, the EC agreed to halt the dramatic increase in oilseed production. If EC acreage exceeds the trigger level, producers there will receive smaller subsidy payments. This will restrain plantings and oilseed production. Also, the EC will ensure that any byproducts produced on its set-aside acres will not undermine the export market. The agreement also calls for a 20-percent reduction across the board in domestic support for agriculture, as well as a 36-percent reduction over 6 years in expenditures for export subsidies and a 21-percent cut in the volume of subsidized farm exports, using a 1986-1990 base. However, France stated that the proposed 21-percent cut in EC subsidized farm exports is not compatible with the Common Agricultural Policy and constitutes a serious threat to all European agriculture. France has threatened to hold up final approval of any GATT agreement over this issue.

The Uruguay Round of trade negotiations has important implications for U.S. commodity programs. The Agricultural, Conservation, and Trade Act of 1990 provides for a two-tier trigger mechanism (GATT trigger) that requires specific commodity and export program adjustments to be implemented or considered by the Secretary of Agriculture in the event an agreement on agricultural trade reform is not achieved in the Round.

Since there was no agreement by June 30, 1992, the Secretary of Agriculture may waive any minimum level of acreage limitation program for any 1993-95 program crops. In addition, the Secretary must increase export promotion programs by \$1 billion during 1994 and 1995, and implement marketing loan provisions for the 1993 through 1995 crops of wheat and feed grains. Marketing loan provisions simply modify existing programs to allow repayment at the lesser amount of the outstanding principal plus interest or the marketing repayment rate. As of mid-May, regulations on marketing loans had not been published.

If an agreement is not entered into by June 30, 1993, the Secretary must consider waiving all or part of the reductions in agricultural spending required by Title I of the 1990 Farm Act, increasing the level of funds made available for export programs, and establishing a marketing loan program for the 1993-95 wheat and feed grain crops.

President Bush signed the NAFTA on December 17, 1992, but left submission of the agreement to Congress for the

new administration. The agreement would become eligible for the fast-track procedure upon submission to the Congress. President Clinton, after meeting with Mexican President Carlos Salinas de Gortari, reaffirmed his support for the NAFTA. However, Clinton stated that outstanding environmental and labor issues need to be addressed. Mexican and Canadian officials agreed, and representatives of the three countries met March 15 in Washington, D.C., to begin discussions.

## Price and Income Support and Acreage Reduction Programs

The target prices for the program crops (wheat, rice, corn, sorghum, barley, oats, and upland cotton) have been held at statutory minimum levels as specified under the 1990 Farm Act (appendix table 9). Since 1986, basic loan rates have been based on a 5-year moving average of market prices, dropping the high and low. In addition, the basic loan rate in a given year could not be less than 95 percent of the previous year's basic loan rate.

However, the Secretary may announce a loan rate which is lower than the basic rate for wheat and feed grains. Loan rates may be reduced up to 10 percent from the basic rate if ending stocks are expected to be large relative to annual use. Also, loan rates may be reduced up to an additional 10 percent to ensure that U.S. commodities are competitive in world markets. Since 1986, the announced loan rates for wheat and feed grains have been lower than the basic loan rates.

For rice and cotton, marketing loans are mandatory. Rice and cotton loan rates are announced at formula-determined levels. These loans may be repaid at any time during the term of the loan. Under the marketing loan program, the loan repayment rate may be as low as 70 percent of the loan rate, depending upon the world price level (determined weekly).

Acreage reduction program (ARP) requirements are set within the statutory guide lines that are based on the level of ending stocks relative to use (appendix table 9). The Secretary has a certain amount of discretion in setting the ARP, to ensure that sufficient supplies are available for domestic and export markets.

## Triple Base Provision More Responsive to Market Signals

Market analysts and producers often complained that requirements in the ARP did not allow program participants to respond to market signals and plant those crops that the producer believed would result in the highest net returns. For example, the corn producer could face the penalty of loss of program base if soybeans are planted on corn base acreage. The triple base provision was designed to allow a participant to respond to market signals on a portion of program base acreage without penalty.

Prior to 1991, the maximum acres eligible for deficiency payments were 100 percent of the crop acreage base less any reduced acreage (ARP requirements plus any paid land

diversion). Starting with the 1991 crop under the triple base program, the maximum payment acreage eligible for deficiency payments is 85 percent of the crop acreage base less any reduced acreage. The 15-percent nonpayment acreage is referred to as normal flex acreage (NFA). Producers also have the option of flexing an additional 10 percent of the farm's base, called optional flex acreage (OFA). OFA is only eligible for deficiency payments if it is planted to the original program crop. The three bases are payment acreage, reduced acreage, and flex acreage.

In 1992, producers planted 4.6 million acres of flex acreage to soybeans, 400,000 to minor oilseeds, and 900,000 to other nonprogram crops.

Although the triple base provision allowed oilseeds and other nonprogram crops to be planted on a portion of program base acres, acreage planted to these crops did not increase (figure 3.3). Fewer acres were planted to soybeans in 1991 and 1992 than any year from 1982 through 1986. Producers, responding to acreage reduction program provisions and market signals, decide how many acres to devote to each crop in 1993. The March *Planting Intentions* report indicated that wheat and soybean plantings may be about the same as last year.

### **Corn Production Lower**

Corn for grain production for 1992 was a record 9.48 billion bushels, 27 percent above the 1991 crop. This large supply of corn available for the market was not as much as in 1986 and 1987. Exports of corn in crop year 1992/93 are projected to be 1.73 billion bushels, up 141 million bushels, and feed and residual use are projected to be 5.25 billion bushels, up 372 million bushels. Total ending stocks are projected at 2.11 billion bushels, up from 1.1 billion bushels a year ago. Corn farm prices in 1992/93 are expected to average between \$2.00 and \$2.15 a bushel, a decline from the previous year's \$2.37 average.

Corn production in 1993 is forecast at 8.5 billion bushel, down from 1992's record crop. However, the total supply of corn available for the market in 1993/94 is expected to be slightly more than for the previous marketing year. A forecast increase in domestic disappearance is expected to be more than offset by a forecast decline in exports. Forecast 1993/94 ending stocks are about the same as the projected carry-in. Corn farm prices are expected to average between \$1.85 and \$2.25 a bushel.

### **Wheat Production Up Slightly**

All wheat production for 1992 was 2.46 billion bushels, up 24 percent from 1991. Imports in 1992 are forecast at 68 million bushels, up 66 percent from the previous year, largely because of increased shipments from Canada. The U.S.-Canada Free Trade Agreement (USCFTA) allows wheat to freely flow from Canada, however, U.S. wheat moving into Canadian markets must have an end-user certificate.

Food use of wheat for crop year 1992/93 is forecast to be 830 million bushels, up 41 million from a year earlier. Feed and residual use may decline 29 million bushels to

225 million and exports are forecast to increase 66 million bushels to 1.34 billion. This will be the third consecutive year that wheat exports, the largest use category, have increased.

Ending stocks of wheat are forecast to be 510 million bushels, up 38 million from a year ago. All wheat farm prices are expected to average \$3.25 a bushel, up from the previous year's \$3.00.

Wheat production in 1993 is forecast at 2.51 billion bushels, slightly more than in 1992. Total wheat supplies available for the market in 1993/94 are expected to be 3 percent more than the previous year. The marketing outlook for 1993/94 is for a slight increase in domestic use to be more than offset by a decline in exports. Ending stocks of wheat are forecast to be 658 million bushels, up 148 million. All wheat farm prices are expected to average between \$2.55 and \$2.95 a bushel.

### **Soybean Production Lower**

Soybean production totaled 2.2 billion bushels in 1992, up 11 percent from 1991, and just short of the record 2.26 set in 1979. In crop year 1992/93, 1.28 billion bushels of soybeans are expected to be crushed, resulting in 13.78 billion pounds of soybean oil and 30.34 million short tons of soybean meal. The forecast is for an increase in the domestic use of soybean oil and soybean meal, and a decline in exports from the previous year's levels. Ending stocks of soybeans are expected to increase to 325 million bushels, ending stocks of soybean meal are forecast to increase to 300,000 short tons, and ending stocks of soybean oil are forecast to decline to 1.75 billion pounds.

The average farm price for soybeans in crop year 1992/93 is estimated at \$5.50 a bushel, lower than the previous year's \$5.58. The market price for soybean oil is estimated to average 20.75 cents a pound, up from the previous year's 19.10 cents, while the market price for soybean meal is estimated to average \$185 a short ton, down from the \$189.20.

Soybean production is likely to be slightly more than 2 billion bushels in 1993. Crushing in 1993/94 is forecast unchanged at 1.28 billion bushels as a small increase in domestic soybean meal feeding is about offset by a drop in soybean meal exports. Soybean stocks should fall to 280 million bushels because of a smaller U.S. crop. Lower soybean exports are based on increased foreign supplies of oilseeds combined with below-trend growth in consumption. In 1993/94, soybean meal prices may drop slightly, hurt by sluggish demand in the FSU and EC along with larger availabilities of foreign protein feeds. Soybean and soybean oil prices in 1993/94 are forecast slightly higher as world vegetable oil supply/demand balances tighten.

### **Large Vegetable Inventories To Keep Acreage Down**

Contracted acreage for the 5 leading processing vegetables is expected to decline 5 percent to 138 million acres in 1993. Acreage for sweet corn and green peas is expected



Figure 3.1  
**Farm Production Index**  
(1977 = 100)

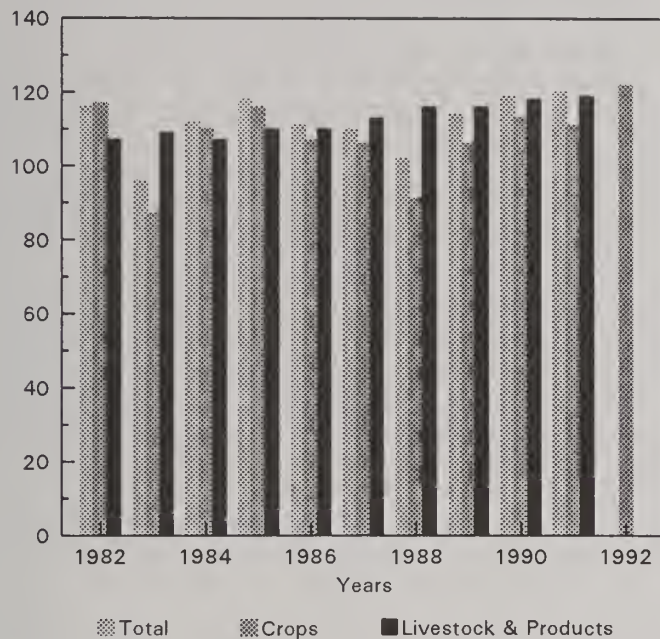
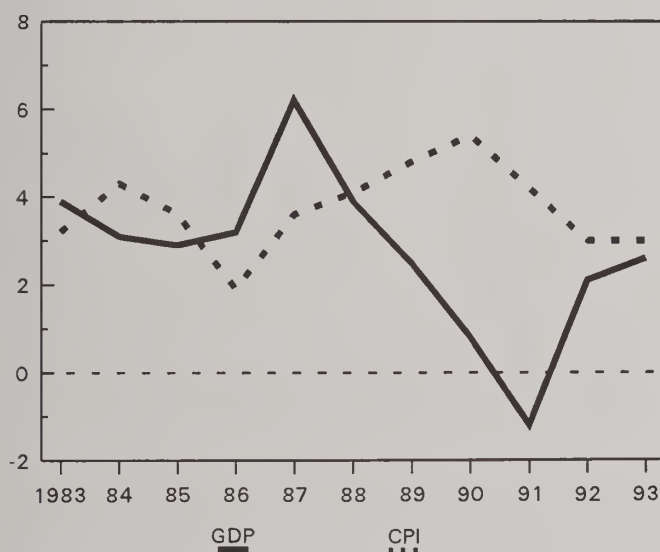


Figure 3.2  
**U.S. Gross Domestic Product and Consumer Price Index**  
Percent change



1993 Estimate by OMB, CEA, & Treasury Dept.

Figure 3.3  
**Wheat, Corn and Soybean Planted Acres**  
Million acres

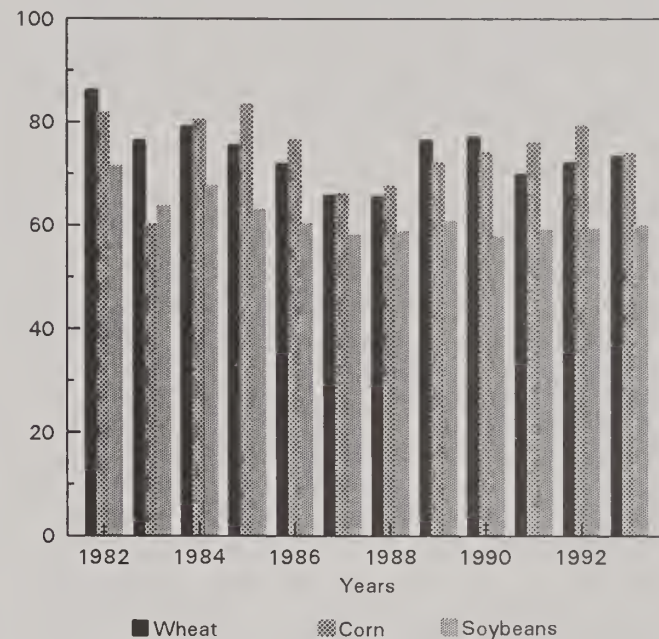
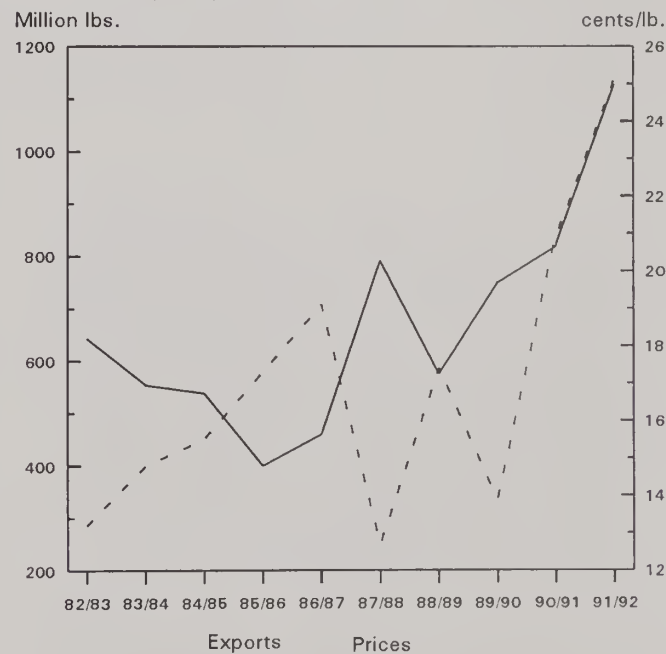


Figure 3.4  
**U.S. Fresh Apple Exports and Grower Prices**  
Million lbs.



to fall, while cucumbers for pickles, snap beans, and tomatoes increase. Despite less acreage, output of the five vegetables could rise as much as 5 percent. Tomato production, which accounts for more than 60 percent of the processing vegetable output, is forecast to increase 1.2 million short tons in 1993.

A smaller tomato crop in 1992 reduced stocks and helped support prices, but stocks relative to use are projected to remain high in 1993/94. Large supplies and low processed tomato prices increased exports and per capita domestic

use. The export value of processed tomato products from just January to August 1992 was the same as for all of 1991. Tomato products accounted for most of the gain in canned vegetable exports as low U.S. prices made paste and sauces attractive to Canada and other importers. Canada continues to be the largest market for U.S. processed tomato products, accounting for 54 percent of total 1992 export value, but other markets are growing fast.

If exports fail to reduce stocks, harvested acreage of dry beans will not change much in 1993/94 from present levels. In fact, prospective plantings for dry edible beans indi-

cate just a 6-percent increase in 1993 acreage. Dry bean export markets, particularly for pintos where imports dropped due to a good Mexican crop, were down considerably in 1991, helping to raise stocks. Producers harvested fewer acres of dry beans in 1992 because of the large inventories. Reduced acreage coupled with lower yields cut production to the smallest level since 1988, following a record-breaking 1991.

### **Ample Orange Supplies To Reduce Imports**

Large 1992/93 U.S. crops are expected to provide ample fruit supplies. Citrus fruit production is forecast up 23 percent in 1992/93, the highest level since the record-breaking crop of 1979/80. The largest Florida orange crop since 1979/80 and the largest California orange crop since 1982/83 are expected to boost U.S. production by 27 percent in 1992/93. The larger Florida crop and more Brazilian oranges should increase global orange juice production in 1992/93, because these countries are the largest producers in the world.

Since orange juice imports represent a residual supply in the United States, imports should continue to fall. The larger California crop will provide ample supplies of fresh market oranges for domestic and export markets, since California normally provides about 80 percent of U.S. fresh market oranges. This should reduce U.S. imports from Mexico, the major supplier of fresh oranges when U.S. supplies fall short. Ample supplies should continue to keep grower and retail prices down.

### **Apple and Pear Export Markets on the Rise**

U.S. apple, pear, and grape production was higher in 1992, placing downward pressure on prices. However, record fresh market apple and pear exports in 1991/92 helped to boost grower prices to record levels, indicating the importance of export markets (figure 3.4). Grape and almond exports are also growing because supplies have increased and the standard of living in major export markets has improved. Fresh market apple and pear exports to Mexico and other expanding markets are expected to continue increasing due to higher incomes and reduced trade barriers.

### **Red Meat and Poultry Exports Continue To Grow**

The value of beef exports exceeded imports for the first time in 1992 (figure 3.5), although the quantity imported was about twice as large as that exported. The United States imports mainly grass fed manufacturing beef and exports higher quality, grain fed beef. Beef exports in 1992 increased more than 11 percent from the previous year due to substantial growth in sales to Japan, South Korea, and Mexico. Beef exports are expected to decline 2 percent in 1993, with lower exports to South Korea and Mexico. U.S. live cattle imports from Canada exceeded those from Mexico for the first time since 1981, as inventories in Canada continue to expand.

Pork production is expected to continue increasing in 1993. Exports could be up slightly, depending on Russia's

credit problems and sales through credit guarantees. Growth in exports to Mexico could be limited by expanding Mexican production. Commercial pork production in 1992 was a record 17.2 billion pounds, an increase of 8 percent. Hog prices averaged \$43 per hundredweight, down 13 percent from 1991. At 407 million pounds, exports were 44 percent over the previous year. More competitive U.S. pork prices than Taiwan's helped boost sales to Japan. Although exports to Mexico were especially high, much of the addition replaced live hog sales which dropped due to stricter enforcement of Mexican health restrictions.

In 1993, broiler production is forecast to increase about 4 percent, the twentieth consecutive annual increase. Stable feed costs and improved prices have encouraged continued expansion. Exports, up 18 percent in 1992, reached a record 1.49 billion pounds and may set another record in 1993 of approximately 1.6 billion pounds. The Pacific Rim, Mexico, and Canada will remain the major export markets. Exports to the FSU are expected to increase, boosted by food aid sales, and by expected agreements on the settlement of credit guarantees.

### **Agricultural Trade Balance Steady**

Agricultural exports in fiscal 1992 had the highest dollar amount since 1981, the second highest ever (figure 3.6), and are expected to remain steady in 1993. Although the export volumes of most LVP are expected to increase in 1993, more world production of grains and oilseeds should lower prices and total value for U.S. LVP exports.

However, offsetting this will be increases in HVP exports, which are expected to rise for the eighth consecutive year in 1993 as horticulture and animal product exports reach new records (figure 3.7). Since the second half of the 1980's, HVP's have captured an increasing portion of U.S. exports because of gains in sales and sluggish LVP shipments. HVP exports were a record high \$23.2 billion in 1992. Horticultural and animal products represent a major portion of HVP exports, and reductions in trade barriers and strong demand in importing countries have helped to boost exports of these products.

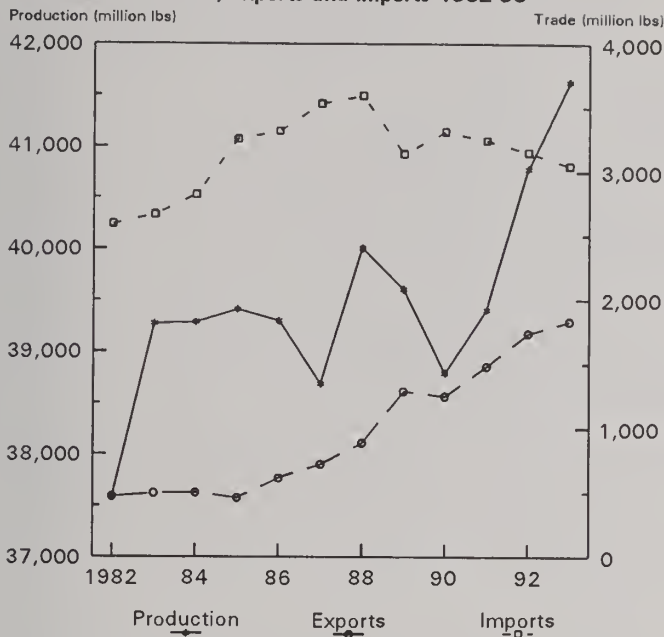
One-quarter of U.S. agricultural imports came from Canada and Mexico in 1992. Those from Canada rose 22 percent to over \$3.9 billion, with major gains in cattle, beef, wheat, and corn. Imports from Mexico fell 10 percent to \$2.3 billion, but still led third-place importer Brazil by nearly \$1 billion. Large declines in cattle, coffee, and tomato shipments accounted for much of Mexico's drop. U.S. imports of agricultural products are expected to increase \$200 million from 1992's record \$24.3 billion as the economy continues to improve.

### **Strength In Farm Income**

Record or near-record yields for many major U.S. field crops (grains, soybeans, and cotton) raised 1992 net incomes (figure 3.8). Net cash income of \$59.9 billion was up 3 percent from 1991, and net farm income of \$50.3 billion was up 13 percent. Net farm income, which includes

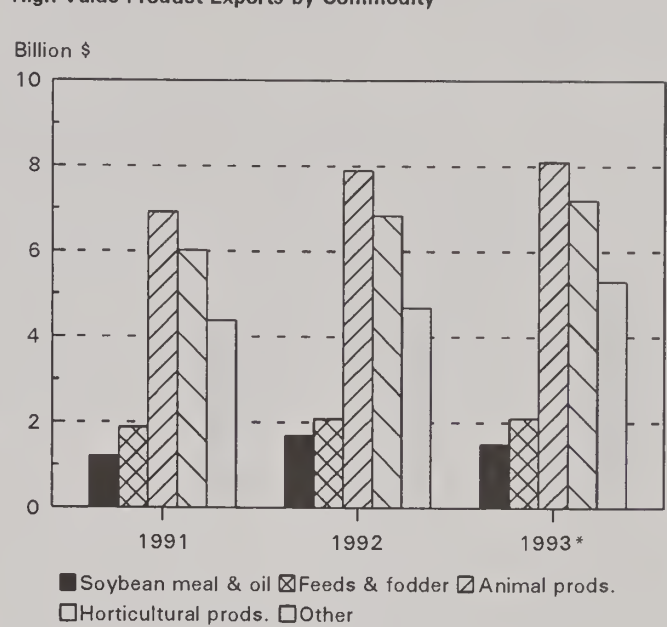


Figure 3.5

**Red Meat Production, Exports and Imports 1982-93**

1993 Forecast

Figure 3.7

**High-Value Product Exports by Commodity**

\* = Forecast.

Figure 3.6

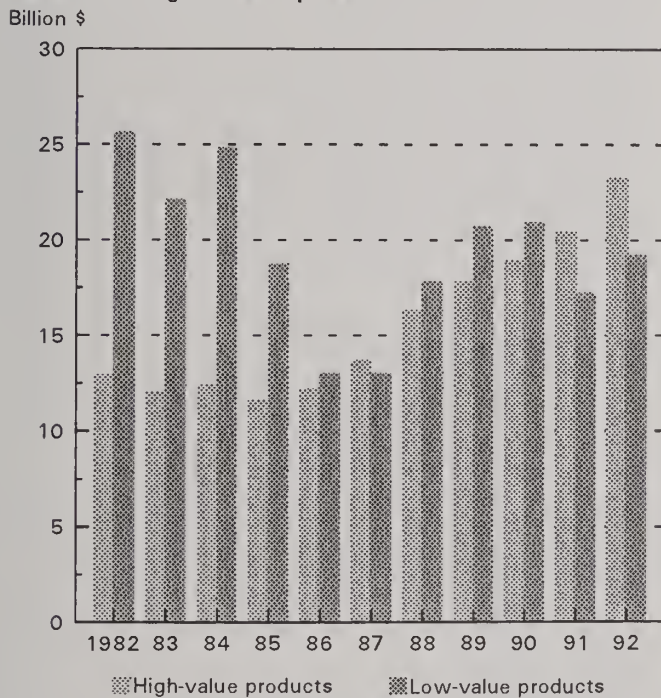
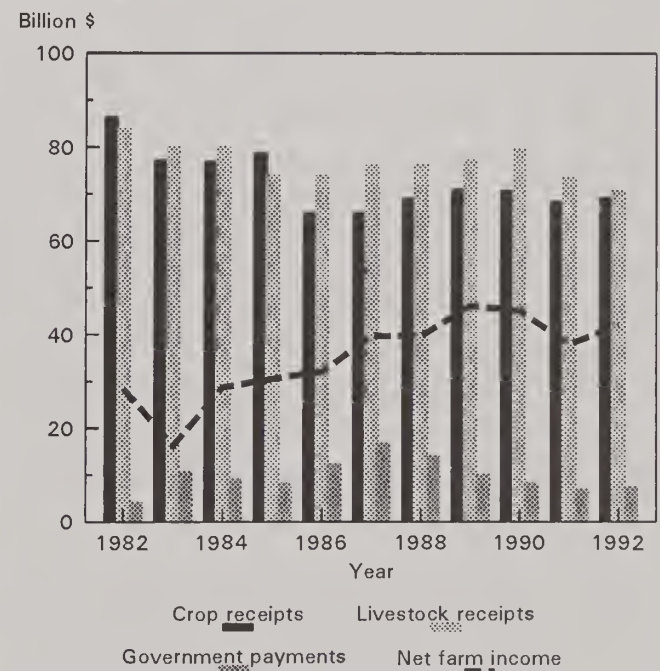
**Value of U.S. Agricultural Exports**

Figure 3.8

**Net Farm Income and Cash Receipts (1987 Dollars)**

noncash income and expense components, was up more than net cash income due to an additional \$4.0 billion in inventories carried over into 1993. Although cash receipts and net farm income have increased over the past 10 years, in real terms, cash receipts have declined and a smaller increase in net farm income has occurred.

In 1991 and 1992, direct government payments contributed about 17 percent of net farm income. Although they increased 10 percent in 1992, in real terms, government contributions to net farm income have been declining since 1987.

## Canada

*The Canadian economic growth rate is expected to rise in 1993, benefitting from low inflation and increased exports. Proposed policy reforms involving the Canadian Wheat Board and the Western Grain Transportation Act would significantly affect future Canadian grain production and marketing. Grain and oilseed production is forecast to rebound in 1993/94 from last year's poor growing conditions, with canola, corn, and soybeans having the largest increases. Canada's agricultural trade with the United States continues to grow as tariffs are reduced under the U.S. - Canada Free Trade Agreement (USCFTA). [Mark Simone]*

### Economic Recovery Slow

The Canadian gross domestic product (GDP) grew only 1.1 percent in 1992, as it recovered from recession. Stagnant growth in the United States, Canada's leading trading partner, hampered the economic recovery. A high unemployment rate, 11.3 percent in 1992, compared to 7.5 in 1989, and weak consumer confidence also restrained growth in 1992. However, the Bank of Canada (BOC's) tight monetary policies in recent years have proven successful in reducing the annual inflation to 1.5 percent, the lowest of the major industrialized countries. The Canadian dollar stabilized during the first quarter of 1993 in the range of 0.78 to 0.80 per U.S. dollar.

The Canadian economy is expected to improve in 1993, with annual GDP growth of 3.3 percent. A relatively low Canadian dollar and low inflation should boost growth. However, if Canada's high unemployment rate and a sluggish U.S. economy continue, significant growth will be curtailed. The strength of the U.S. economy is especially critical since the United States accounts for almost 70 percent of Canada's total exports. Upward pressure will also remain on interest rates, with a combined federal and provincial deficit of \$45 billion expected for the 1993 fiscal (April/March) year. This would be a record deficit and raise total government debt to 90 percent of GDP, second only to Italy among G-7 countries.

An added uncertainty for the economy is the decision of Prime Minister Brian Mulroney to resign in June rather than seek reelection this fall. With Mulroney as the candidate, the Progressive Conservative Party was expected to lose to the Liberal Party. Now, the election outlook is far more uncertain.

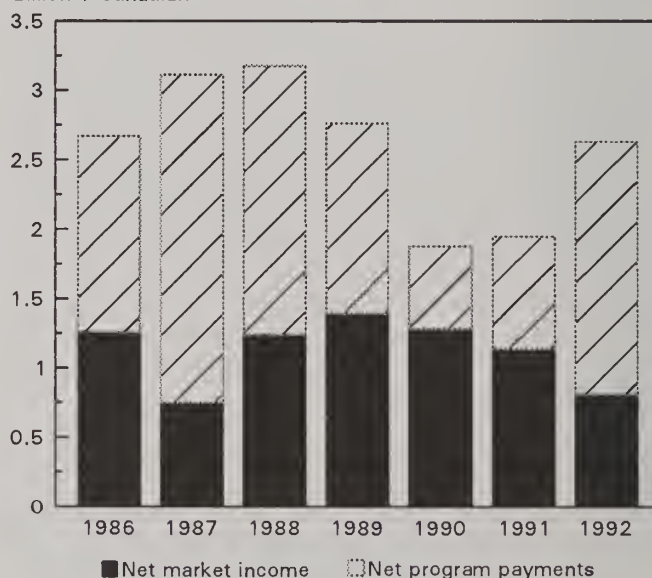
### Agriculture Policies in Transition

Canada's agriculture policies are in a stage of transition as pressures, both domestic and international, have changed the environment. The pressures are the result of budget shortfalls, producer dissatisfaction with present programs,

the current GATT Uruguay Round negotiations, and U.S. trade complaints.

International pressures, primarily from the United States, have been triggered by trade disputes in durum wheat, lentils and peas, and livestock. In all of these disputes, Canadian domestic policies have been cited as the source by the United States. The continued use of export subsidies for grains by the EC and the United States also places pressure on Canadian farm income, especially with the federal government offering no ad hoc support programs for grains and oilseeds in 1993. In past years, there were the Special Canadian Grains Program, Special Income Assistance Program, and Farm Support and Adjustment Measures. Agriculture Canada forecasts realized net farm income down 21 percent for 1993, with lower crop and program payments. Canadian farmers grossed a record \$CAN 23 billion in farm income in 1992, primarily the re-

Figure 4.1  
Net Market Income and Direct Payments  
For Canadian Grain and Oilseeds  
Billion \$ Canadian



Source: Agriculture Canada, Policy Branch



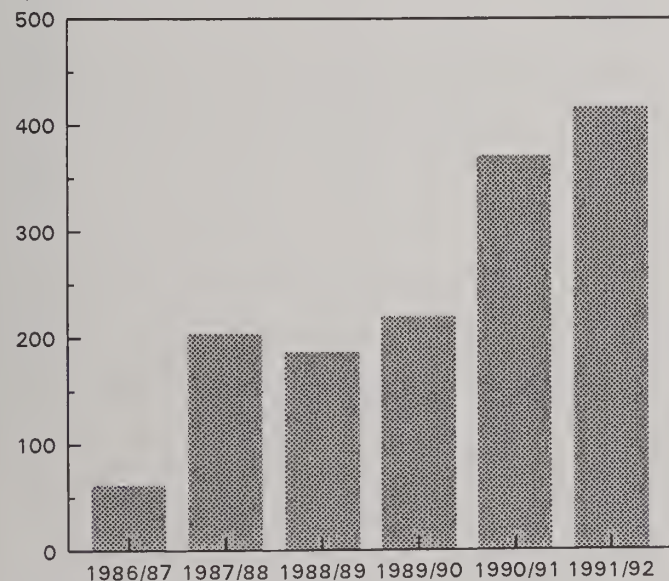
sult of a 64-percent increase in government payments, according to Statistics Canada. For grains and oilseeds, program payments were a large proportion of total farm income in the latter 1980's as well as 1992 (figure 4.1).

#### **Canadian Wheat Board Under Pressure To Change**

The Canadian Wheat Board (CWB) is experiencing domestic and international pressures. It is the sole exporting agent for Canadian wheat and barley. In recent years, rising durum wheat exports to the United States have triggered U.S. complaints, primarily from North Dakota durum producers (figure 4.2). Because the CWB does not disclose sales prices for competitive reasons, the United States viewed Canada as being in violation of Article 701.3 of the USCFTA, which prevents either country from selling agricultural products below acquisition cost. In 1992, the United States sought remedies by requesting a USCFTA binational dispute settlement panel determination. In February 1993, the panel defined acquisition cost and the CWB will be periodically audited to ensure its U.S. sales do not violate the USCFTA.

The rise in barley prices in the United States relative to Canada during the 1991/92 crop year stirred debate on whether the CWB should continue as the single seller to the United States. Western Canadian barley producers feel they can obtain a higher price by selling directly into the U.S. market rather than through the CWB. Producers have proposed that the CWB relinquish control of marketing barley within North America while continuing as the sole exporter to other regions. However, the CWB asserts the high U.S. price is transitory and will evaporate once Canadian barley producers freely sell to the United States. The CWB also notes that a large influx of barley imports could invite U.S. trade action, such as countervailing duties. Based on the results of a Canadian Government

Figure 4.2  
**Exports of Canadian Durum Wheat to the U.S.**  
August/July Crop Year  
1,000 Metric Tons



Source: Canadian Grain Commission

study, the federal government decided to allow producers the option of selling barley directly to the U.S. or continue marketing their grain through the CWB. The change will begin August 1, 1993.

#### **Western Grain Transportation Act Reform Considered**

The Western Grain Transportation Act (WGTA) is an annual \$CAN 721 million federal government subsidy paid to the railways for shipping eligible grains, oilseeds, and specialty crops from the Prairie Provinces to port positions. Fiscal pressures from growing budget deficits in recent years caused the federal government to reduce the subsidy by 10 percent in the 1993/94 and 1994/95 (August/July) crop years.

Grain and oilseed producers in western Canada and livestock producers in Alberta are seeking to reform the WGTA. Currently, the railways are paid two-thirds of the total freight cost by the federal government, with producers paying the remainder. Here are possible changes to the WGTA: The payment going directly to producers rather than railways; paying out the WGTA in an annuity or bond over several years, then discontinuing it; discontinuing the WGTA without compensating producers. In June 1993, the federal government announced plans to reform the WGTA, shifting payment to producers rather than the railways over a four year period beginning August 1, 1993.

Reforming the WGTA will result in efficiencies since it is widely acknowledged to increase returns to grain, oilseed, and specialty crop producers above competitive conditions. Changing the payment scheme would permit diversification into other enterprises in western Canada such as livestock or value-added processing of grains and oilseeds. Also, since most of the products shipped under the WGTA are exported, it is viewed as an export subsidy by Canada's trading partners. The United States has accused Canada of using the WGTA to subsidize wheat into the United States, and displace U.S. exports of alfalfa, peas, and lentils from world markets. If the WGTA were reformed, Canada would be less likely to incur criticisms and trade disputes with the United States.

#### **Gross Revenue Insurance Plan**

The Gross Revenue Insurance Plan (GRIP) for grains, oilseeds, and specialty crops operates in all Canadian provinces, except Newfoundland. GRIP went into effect in the 1991/92 crop year under the Farm Income Protection Act (FIPA). It replaced the Western Grain Stabilization Program (WGSP) as the primary stabilization or safety net policy for western Canadian grains and oilseeds. GRIP provides revenue insurance based on a 15-year indexed moving average of past market prices and a farmer's long-term average yield. When a farmer's current revenue falls below this calculated target revenue, a payout is made. The program is funded by premiums paid by participating producers, provincial governments, and the federal government. Premiums exist for the individual grains, oilseeds, and specialty crops. For the 1991/92 crop year, Agriculture Canada estimates net GRIP payouts of \$CAN 1.6 bil-

lion after deducting \$CAN 400 million in producer premiums.

The program operation varies across the provinces, with the Saskatchewan GRIP currently differing the most from other provinces. Saskatchewan only provides yield protection if crop insurance is purchased in addition to enrolling in the GRIP program.

### Net Income Stabilization Account

Like GRIP, the Net Income Stabilization Account (NISA) was initiated in the 1991/92 crop year under the FIPA. Under the program, individual savings accounts are established for participating producers of grains, oilseeds, and specialty crops. Farmers can contribute 2 percent of up to \$CAN 250,000 in eligible sales which is matched by provincial and federal governments. Producers can withdraw money from their accounts when the gross margin for the farm falls below the average for the previous 5 years, or taxable income falls below \$CAN 10,000.

In the 1991/92 crop year, total provincial and federal government funds withdrawn from participant's accounts was \$CAN 377.2 million. In recent years, large deficiency payments have been made to Canada's cattle and hog producers under the National Tripartite Stabilization Program (NTSP). As Canada's exports of cattle and hogs and their products to the United States have risen, the United States has criticized the NTSP. To deflect U.S. criticism, Canadian livestock producer organizations have advocated adopting the NISA program for cattle and hogs since it is viewed as less trade-distorting than the NTSP.

### Supply Management a GATT Dilemma

Canada's dairy and poultry sectors operate under a system of supply management that balances domestic supply and consumption through production quotas. Producer prices are set in relation to production costs and import quotas are utilized to ensure domestic price stability. The import quotas are allowed under GATT Article XI, which permits their use when production controls are present. Supply management has raised retail prices for poultry and dairy products above those prevailing in the United States. This is one disparity that causes Canadians to do more cross-border shopping in recent years.

Supply management is a dilemma for Canada in the current GATT negotiations. The market access provisions under the Dunkel text specify that all nontariff barriers, such as quotas, be converted to their tariff equivalents, known as "tariffication", and then be reduced 36 percent over a 6-year period. Because Canadian dairy and poultry producer prices are usually above world prices, conversion to tariffs is envisioned by these farmers as eroding their income.

The Canadian Government has given general approval of the Dunkel text with respect to agriculture since it would reduce export subsidies by other countries, which are detrimental to Canada's grain and oilseed producers. However, the question of full tariffication presents a problem with the dairy and poultry sectors. It is expected that if Japan

agrees to tariffication for rice, Canada will impose tariffs on its supply managed commodities.

## Commodity Situation and Outlook

### Wheat Production Down Slightly

Agriculture Canada estimates 1993/94 overall wheat production is down marginally, because of less winter wheat planted in Ontario, due to a late soybean harvest in 1992, and some spring wheat acreage being shifted into canola (table 4.1). However, durum wheat production is forecast to increase as more area is planted because of higher expected prices. The United States and EC, Canada's main competitors in durum export markets, are projected to have less durum area in 1993.

Canada's aggregate wheat production in the 1992/93 crop year declined slightly, after two consecutive large harvests.

**Table 4.1**  
Production, exports, and imports of major Canadian grains and oilseeds

					Change from 1992/93
	1990/91	1991/92	1992/93	1993/94	1992/93
	---Million metric tons---				Percent
PRODUCTION:					
All wheat <sup>1</sup>	32.10	31.95	29.87	28.00	-6.26
Durum	4.20	4.59	3.14	3.00	-4.46
Barley	13.44	11.62	10.92	11.70	7.14
Oats	2.69	1.79	2.82	3.00	6.38
Corn	7.35	7.41	4.88	6.50	33.20
Canola	3.27	4.22	3.69	4.46	20.87
Soybean	1.26	1.46	1.39	1.71	23.02
Total	60.11	58.45	53.57	55.37	3.36
EXPORTS:					
All wheat <sup>1</sup>	20.50	24.20	19.50	21.00	7.69
Durum	3.23	2.88	2.60	2.50	-3.85
Barley	4.50	3.31	2.50	2.80	12.00
Oats	0.39	0.38	0.65	1.00	53.85
Corn	0.12	0.96	0.11	0.25	127.27
Canola	1.89	1.89	1.81	2.00	10.50
Soybeans	0.19	0.25	0.29	0.48	65.52
Total	27.59	30.99	24.86	27.53	10.74
IMPORTS:					
All wheat <sup>1</sup>	0	20	0	0	0.00
Durum	0	0	0	0	0.00
Barley	0	2	0	0	0.00
Oats	0	2	0	0	0.00
Corn	504	218	1500	500	-66.67
Canola	19	42	130	60	-53.85
Soybeans	164	72	125	75	-40.00
Total	687	356	1,755	635	-63.82

1 Includes durum.

Sources: USDA, Agriculture Canada, Statistics Canada



However, more importantly, wheat quality was severely affected in 1992 by adverse weather. As a result of the early freeze, the quality of the 1992/93 wheat crop is sharply below historical standards and about half is being graded as feed quality.

Canada's 1992/93 projected wheat exports of 19.5 million tons are 4.7 million tons fewer than the record established in 1991/92, because of large declines in imports by the FSU and China, and strong competition in the feed grain market.

#### ***Coarse Grains Production To Increase***

Total coarse grain production is forecast to rise in 1993/94, primarily the result of more area planted to corn than in 1992. However, barley production is anticipated to decline again, a result of large beginning stocks of it and feed wheat. Despite reduced production, barley exports may increase because of abundant stocks. Oats production is forecast to rise, with increased harvested area and yields. However, oats exports to the United States could decline as growing conditions return to normal in the Scandinavian countries (table 4.1).

Corn production also declined in 1992, with less harvested area and diminished yields. Ontario, the primary corn producing province, had its crop devastated by a cool, wet growing season and extremely adverse harvesting conditions. As a result, Canada will be a net importer of corn in 1992/93, with shipments from the United States rising significantly.

#### ***Oilseed Production To Recover***

Canola or rapeseed production is forecast to rebound in 1993/94. Harvested area is forecast to increase in response to higher expected prices relative to wheat and tight beginning stocks. Continuing a long-term rising trend in planted area, soybean production is also forecast to be greater in 1993/94, as less area is seeded to winter wheat (table 4.1).

Canada's 1992 canola production was plagued by a cold summer with frost and snow during August, and dry conditions. Production dropped sharply, following the record 1991 output. The shortage caused Japan to bid up canola prices on the Winnipeg Commodity Exchange during fall 1992.

#### ***Beef and Pork Expansion Continues***

The abundance of feed wheat in 1992 benefited the Canadian beef industry as production rose with increased profitability. Beef production in 1993 is expected to continue to expand as the reduction in the industrial milk production quota for the 1992/93 dairy year provides additional cows for slaughter.

Beef and veal exports to the United States rose dramatically in 1992, a 50-percent increase over 1991. The United States is Canada's principal export market for these meats, accounting for over 90 percent of Canadian beef

and veal exports in the last 5 years. Greater beef production and a lower Canadian dollar were significant factors boosting exports to the United States in 1992. Canada's beef imports declined slightly in 1992 as imports from the United States dropped after several years of growth. The slow growth of the Canadian economy was a key factor for this decline.

With the expected increase in beef production for 1993 and the continued weakness in the Canadian dollar, exports are anticipated to increase slightly. Beef imports are also expected to fall in 1993 because of increased domestic supplies and continued weakness in the Canadian dollar.

Canada's pork production is forecast to rise in 1993 with lower expected corn prices in Ontario increasing the incentive for expanding hog inventories. Pork production also rose in 1992 with increased domestic slaughter as the United States applied a higher countervailing duty (CVD) on live hog imports from Canada. Canada's pork exports to the United States are not subject to a CVD. The United States levied the CVD because the U.S. Commerce Department determined that payments under the National Tripartite Stabilization Program (NTSP) to Canadian hog producers unfairly subsidize exports to the United States. A binational dispute settlement panel set up under the USCFTA ruled on October 30, 1992, that the NTSP is not a countervailable subsidy but the United States is currently challenging the decision on live hogs.

Pork exports are forecast to remain virtually unchanged in 1993. However, exports to the United States may increase slightly with a favorable exchange rate. Unlike live hogs, pork products do not face a U.S. countervailing duty. However, the size of this increase will be tempered by record U.S. pork production.

#### ***Poultry Production Quotas Changed***

Canada's chicken production is expected to increase for 1993 because the Canadian Chicken Marketing Agency (CCMA) raised its annual production quota by 4.2 percent for 1993. Imports had been increasing since the USCFTA expanded Canada's import quota for U.S. chicken imports to 7.5 percent of the previous year's domestic production (table 4.2).

Canada's 1993 turkey production is projected to decline, based on a smaller production quota set by the Canadian Turkey Marketing Agency (CTMA). Consumption, however, is expected to rise with higher retail prices for pork. Imports are not anticipated to increase significantly in 1993 because of large beginning frozen stocks.

#### ***Dairy Output To Decline***

Canadian consumers' changing preferences for dairy products that are lower in fat content triggered a decrease in the national production quota Market Sharing Quota, (MSQ) of 3 percent for industrial milk production in the 1992/93 (August/July) dairy year. The MSQ is currently based on butterfat content which provides the incentive to produce industrial milk with higher fat. As a result, Can-

ada's industrial milk and cream production is forecast to decline by 5.5 percent for the 1992/93 dairy year.

Table 4.2

Production, consumption and net trade of beef, pork, and poultry meat in Canada

	1991	1992	1993	Change from 1992/93
---				
	--- 1,000 metric tons ---			Percent
PRODUCTION:				
Beef and veal	879.5	925.5	954.7	3.2
Pork	1,131.0	1,219.4	1,245.0	2.1
Chicken	559.5	562.2	582.7	3.6
Turkey	130.1	130.9	123.3	(5.8)
Total meats	2,700.1	2,838.0	2,905.7	2.4
CONSUMPTION:				
Beef and veal	986.4	988.6	1,006.0	1.8
Pork	764.0	822.9	844.2	2.6
Chicken	603.5	617.7	633.6	2.6
Turkey	125.9	128.1	128.8	0.5
Total meats	2,479.8	2,557.3	2,612.6	2.2
NET TRADE:				
Beef and veal	(110.0)	(62.0)	(55.0)	(11.3)
Pork	254.0	276.3	276.6	0.1
Chicken	(42.1)	(52.7)	(51.3)	(2.6)
Turkey	1.7	1.7	0.6	(62.7)
Total meats	103.6	163.3	170.9	4.7

Note: Net trade = exports - imports

Sources: Agriculture Canada, Statistics Canada

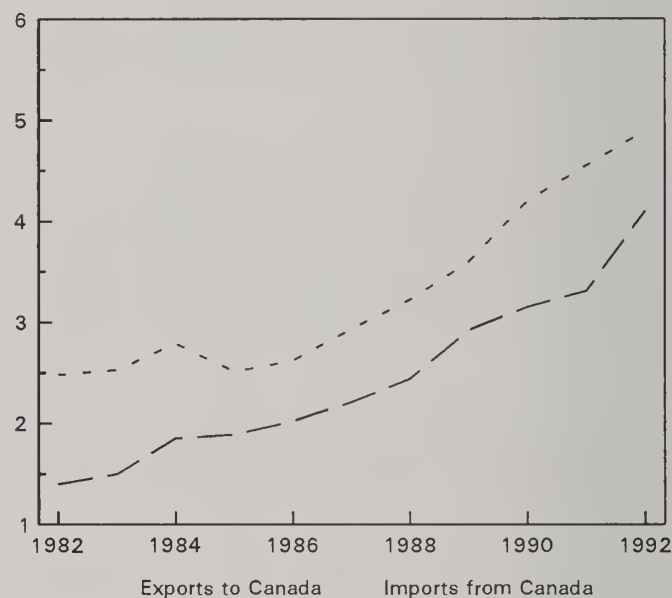
## Composition of Canadian Agricultural Trade

Canada's agricultural exports account for approximately 7 percent of total Canadian export value. The dominant exports are wheat, barley, canola, beef, pork, and live animals, and the leading destinations are the United States, Japan, China, and the FSU.

The USCFTA went into effect on January 1, 1989, with the objectives of reducing barriers and promoting trade between the two countries. In agriculture, liberalization occurred in tariffs, export subsidies, certain nontariff barriers, and technical regulations. The USCFTA has spurred an increase in the growth of agricultural trade between the United States and Canada (figure 4.3).

Figure 4.3

U.S. - Canada Agricultural Trade  
Billions \$



Source: USDA and Statistics Canada

Table 4.3

Share of Canadian wheat and flour exports to selected destinations, August/July crop years

	1986/87	1987/88	1988/89	1989/90	1990/91	1991/92
	----- % change from previous year -----					
Western Hemisphere	17.0	13.3	12.0	8.7	13.1	25.9
Brazil	3.8	1.9	0.1	1.3	1.7	8.8
Mexico	1.2	1.5	0.0	0.0	0.3	2.5
United States	2.0	1.7	2.2	2.1	3.1	4.9
Former Soviet Union	25.9	19.1	21.5	20.1	32.7	23.9
Asia	41.4	61.0	29.2	47.5	43.0	62.6
Peoples' Republic of China	20.2	32.6	22.8	26.3	13.2	34.6
Japan	6.5	6.3	10.9	8.4	6.3	7.1
South Korea	5.6	2.6	0.3	0.1	5.7	3.6



Canada's wheat exports account for approximately 40 percent of the value of total agricultural exports. Wheat exports have historically been concentrated toward the FSU and China. However, with large wheat harvests in 1990 and 1991, Canada's wheat exports to the Western Hemisphere increased (table 4.3). As China increases its self-sufficiency in wheat production and the FSU's credit problems continue, Canada must find alternative markets to sustain wheat exports. Therefore, Canada will be looking increasingly to Western Hemisphere markets. Trade agreements, such as the USCFTA and NAFTA, will assist this growth in wheat exports to North America. Under the agricultural provisions of the NAFTA, Canada opted to negotiate a bilateral agreement with Mexico rather than a trilateral pact with the United States. The agricultural provisions under the USCFTA will continue, however.

Canada's agricultural exports of live animals, meats, fruits, and vegetables are largely orientated toward the United States. Oilseeds and grains such as canola and barley are primarily destined for Japan and Saudi Arabia, respectively.

A significant share of Canada's agricultural imports are from the United States, including beef, poultry, corn, sugar products, fruits, and vegetables.

Canada's agricultural trade with Mexico relative to the United States is extremely small. Fruit and vegetable imports from Mexico have become more significant. Canada's primary exports to Mexico are wheat, canola, and milk powder. Canada-Mexico trade should continue to grow with tariff reductions and other trade liberalizing measures occurring under the NAFTA.

#### *Agricultural and Economic Situation and Outlook (cont.)*

## **Mexico**

*Mexican agriculture, still influenced by trade restrictions, such as tariffs, nontariff barriers, and domestic price controls, is moving toward liberalization and market-oriented policies. Reforms have already changed domestic production and international trade. Growing demand in Mexico because of population gains and increases in per capita income is expected to expand U.S. exports. Mexico's exports of high-value farm products, including fruits, vegetables, and livestock products, to the United States will expand. [Constanza M. Valdes]*

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### **Economic Growth Expected To Continue**

Mexico had a population of 89 million in 1992 and a gross domestic product (GDP) of \$327 billion, about \$3,878 per capita. Real GDP growth was 4.6 percent.

The Mexican economy is expected to continue to demonstrate strong growth throughout the 1990's, given the achievements of recent years and the economic reform plan for 1989-1994 (Pact for Economic Stabilization and Growth, PECE). The goals of this economic plan are to lower inflation to about 8 percent, maintain real GDP growth at about 3 percent, increase productivity, and reduce government intervention. The Mexican government expects to consolidate the gains from the opening of the economy through several trade initiatives. The NAFTA was signed in December 1992 and its ratification by the legislative bodies of Mexico, Canada, and the United States is possible as early as 1994. A free trade agreement signed with Chile in 1991 has led to significant expansion of bilateral trade flows. A similar outcome is expected from the trade initiatives currently under negotiation with Colombia, Venezuela, and the Central American countries.

The shift from guaranteed (support) prices to agreement prices for most basic agricultural commodities, except corn and dry beans, is expected to continue as the government adjusts domestic prices to reflect world prices and producer costs, while easing out of market intervention. Throughout the 1990's, economic support will be reduced for all but the low-income producers. Price controls on consumer products may be eased and subsidies reduced because they are too costly to be maintained and run contrary to the current market-oriented policy. However, subsidies targeted at low-income consumers are likely to continue.

Investments in agriculture and food processing are expected to increase during the 1990's, as the financial constraints of the private sector are eased. More investment should increase cropping through additional irrigated area. Productivity growth should improve gradually, as technology and increasing investment gradually offset the reduced input subsidies. Policies will gradually shift agriculture away from production of traditional import crops toward high-value export crops, including horticultural and livestock products.

## Macroeconomic Developments

Following the macroeconomic crisis of 1982, Mexico took strong measures to stabilize the economy, liberalize foreign trade, and privatize public enterprises. In 1987, the Mexican Government negotiated the country's economic reform program, Economic Solidarity Pact (ESP), with labor and business sectors. The program was intended to consolidate the two goals of price stability and sustained economic growth. The program tightened fiscal and monetary policy, accelerated trade liberalization, reduced agricultural production subsidies, relaxed foreign investment regulations, and privatized public enterprises. These reforms were complemented by reductions in price controls and a freeze of public sector prices. In addition, a "crawling peg" exchange rate policy has, since 1988, been in place.

In November 1992, the PECE was renewed until December 31, 1993. Reforms have already resulted in strong economic recovery, and a sharp increase in private investment in Mexico.

Mexican farm support policies have relied on input subsidies and producer price supports sustained by border control programs. In recent years, however, Mexico has undertaken significant policy reforms that include some liberalization of agricultural markets. As part of the economic reform process, and in an effort to ease out of market intervention, the Mexican Government has announced

the adoption of an alternative producer support policy to be implemented in late 1993. The policy consists of direct payments to producers with the objective of maintaining agricultural incomes while adjusting domestic prices to reflect both world prices and producer costs, and to reduce budget expenditures. Under the new price support policy, guarantee and agreement prices for basic crops in Mexico will approach world market prices, which would result in lower production and higher imports.

## U.S. Is Important Trade Partner for Agricultural Products

The improved economic conditions in Mexico are also a result of trade reforms. In 1986, Mexico joined the GATT and reduced its tariffs from 100 percent in 1985 to 25 percent in 1992.

Mexico's imports and exports account for 18.7 and 13.1 percent of GDP, respectively (table 5.1). In recent years, about two-thirds of Mexican exports were destined for the United States, and about 95 percent of the imports came from the United States. The next most important trading partners are the EC, Japan, and Canada. Mexico's trade with other Latin American countries remains small, only 4.8 percent of exports in 1991. Interregional trade is expected to grow as the different trade agreements are implemented.

Table 5.1  
Mexican economic indicators

	1985-89 average	1990	1991	1992
<b>GROSS DOMESTIC PRODUCT:</b>				
In current prices, billion pesos	246,653	668,691	830,018	989,225
In current prices, billion US\$	168.5	238.2	275.3	316.7
In 1980 prices, billion pesos	4881.1	5236.3	5461.3	5713.7
% change	1.0	3.9	4.3	4.6
Per capita GDP in 1980 prices, 1,000 Pesos	63.7	64.5	66.0	67.8
<b>DOMESTIC PRICES (1990 = 100):</b>				
Consumer price index	59	151	185	214
Producer price index	52	122	145	168
<b>IMPORTS:</b>				
Goods and services, billion pesos	34485.2	119410.8	51979.4	184602.5
% change	97.9	55.8	27.3	21.5
<b>EXPORTS:</b>				
Goods and services, billion pesos	41170.4	104947.1	15950.4	130052.5
% change	80.9	29.5	10.5	12.2
<b>FOREIGN DEBT:</b>				
Foreign debt, billion US\$	100.2	98.0	105.2	111.6
Total external debt as a % of total exports	328.4	216.2	229.4	225.5
<b>EXCHANGE RATE:</b>				
Pesos/US\$	1425.4	2838.4	3015.9	3104.8
<b>POPULATION:</b>				
Millions	76.69	81.14	82.69	84.27
% change	1.9	1.9	1.9	1.9

SOURCE: Banco de Mexico, Estadísticas Macroeconómicas, 1991.



Mexican agricultural exports to the United States exceeded \$2.4 billion in 1992, primarily fresh vegetables, cattle, coffee, fresh noncitrus fruits, and fresh melons. Mexico is also an important U.S. supplier of processed foods, including tomato paste, fruit juices, and beer.

The value of Mexico's agricultural imports from the United States is expected to increase to a record \$4.1 billion in 1993. Grains are typically the largest import from the United States (figure 5.1), followed by soybeans and

products, sugar, dry beans, seeds, beef and veal, animal fats and oils, dairy products, poultry, live cattle, and wheat. Imports of dairy, livestock, and poultry products have grown the most rapidly, from less than \$300 million in 1980 to over \$1.3 billion in 1992.

Agricultural trade between Mexico and the United States increased from \$3.5 billion in 1980 to \$6.2 billion in 1992, an average annual gain of 4.7 percent (figure 5.2). Mexico purchased over \$1.1 billion worth of U.S. agricultural commodities under GSM-102 in 1992. For 1993, the total authorized allocation of guarantees for GSM-102 increased to \$1.25 billion. The EEP also played a major role in U.S. wheat exports to Mexico during the 1987-89 period.

## Agricultural Commodities

### Corn Imports Steady

Corn is Mexico's major crop, grown on almost one-half of total cropland, with production of over 14.5 million metric tons (mmt) in 1992. Corn is a staple of the Mexican diet. Corn imports represent about one-fourth of domestic supply, mostly from the United States. In 1992, with Mexico's corn production above normal due to improved weather conditions and a favorable domestic pricing policy, imports declined to 1.0 mmt. In 1993, corn imports are estimated to at least maintain the 1992 level.

### Wheat Imports To Rise

In 1992, Mexican wheat production was close to 3.0 mmt. Wheat imports have increased sharply in recent years, exceeding 1.2 mmt in 1992, as prices favored corn plantings over wheat. Mexico has traditionally imported most of its wheat from the United States and Canada. In 1993, wheat imports are expected to rise in response to harvest rains which reduced the size and quality of Mexico's crop.

### Sorghum Imports To Rise Slightly

Sorghum is Mexico's major feed grain, with 2.2 mmt produced in 1992. Mexico gets virtually all of its sorghum imports from the United States. In 1993, imports from the United States are expected to rise marginally compared to the record 1992 level of 4.5 mmt, as rising feed needs increase sorghum demand.

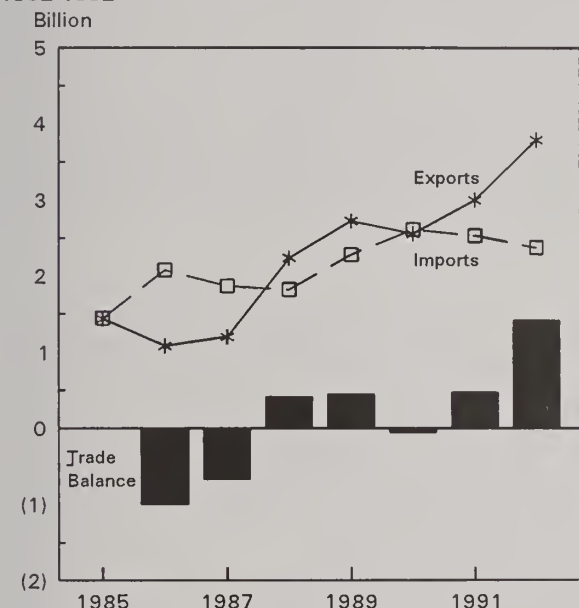
### Soybean Demand Strong

Soybeans are Mexico's primary oilseed. Demand for soybean products outpaced domestic production during the last decade. Traditionally, the U.S. market share has been 78 percent for soybeans, and 76 percent for soybean meal and oil. In 1993, prospects are for sustained growth in soybean demand, reflecting increasing protein feed requirements, and excess processing capacity. Mexican imports of beans are expected to reach 2.3 mmt in 1993.

### Beef, Pork and Poultry Imports Adjust to Market Conditions

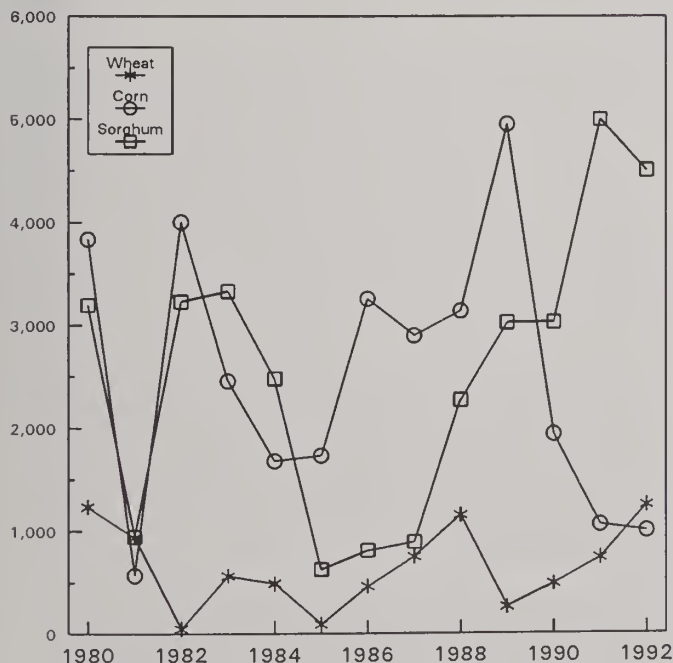
Since 1980, dairy, livestock, and poultry products have been the fastest growing U.S. agricultural exports to Mex-

Figure 5.1  
U.S. Agricultural Trade with Mexico  
1982-1992



Source: FATUS

Figure 5.2  
Mexican Imports of Major Grains  
Million metric tons



ico, reaching over \$1 billion in FY 1992. In FY 1993, pork imports from the United States are expected to be only slightly higher than in 1992, because increased demand in Mexico will be met by increased domestic production, currently at the peak of the production cycle. Mexican poultry meat imports from the United States are expected to grow significantly in FY 1993, driven primarily by lower prices compared to domestic product, rising incomes, and population growth.

In November 1992, under pressure from the domestic cattle industry, the Mexican Government raised the previously zero tariff rate to 15 percent for live cattle, 20 percent for carcass beef, and 25 percent for beef cuts. Growth in U.S. cattle and beef sales to Mexico in FY 1993 will be constrained by these new cattle and beef tariffs.

#### ***Fruit and Vegetable Trade with United States Important to Both Economies***

Mexico is an important supplier of horticultural and tropical products to the United States, amounting to \$1.1 billion in 1992. Coffee, beverages, fruits, and fresh, frozen, and prepared vegetables accounted for 72 percent of total Mexi-

can agricultural exports to the United States. Fresh vegetables accounted for 47 percent of all horticultural exports to the United States, and fresh tomatoes, the most important fresh vegetable from Mexico, provided 38 percent of the total value of fresh vegetable exports.

The United States is the largest supplier of deciduous fruit to Mexican markets. In the past 2 years, Mexico's imports of deciduous fruit from the United States increased with the removal of import licensing requirements for apples and peaches in 1991, and lower domestic production, a result of changes in financing policies, and, in the past growing season, heavy rains throughout the fruit and vegetable producing regions.

#### **References**

- CEPAL (1991). *Statistical Yearbook for Latin America and the Caribbean*.
- CIEMEX-WEFA (1993). *Mexican Economic Outlook*. February.

#### ***Agricultural and Economic Situation and Outlook (cont.)***

### **Brazil**

*Increasing political and economic uncertainties have slowed Brazil's progress in restoring growth. However, the agricultural outlook remains stable due to continued governmental support, good harvests, and a realistic exchange rate policy. The United States will continue to face strong competition from Brazilian exports of poultry and the soybean complex. [Emily A. McClain]*

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#### **Brazil Remains a Country in Transition**

Brazil continues to struggle with political and economic reforms, a process begun over 10 years ago. Major problems include high inflation, domestic debt, and the lack of a well-defined economic plan. The Collor administration introduced the last major reforms in 1990, including privatization, market liberalization, deregulation, exchange rate reform, and a shock program to combat inflation.

The adjustment to recent reforms has been severe. Brazil entered a deep recession in 1990, and economic recovery remains painfully slow. In 1992, progress towards growth and inflation control was largely eroded (figure 6.1). GDP dropped 1.4 percent in 1992. From 1990 to 1991, annual inflation was cut from 1,794 percent to 475 percent, but accelerated to 1,149 percent in 1992 -- the world's second highest rate.

The investigation and impeachment of President Fernando Collor de Mello for influence peddling contributed to po-

litical uncertainty and the 1992 economic contraction, although Brazil proved it could survive a major crisis without a large drop in economic performance.

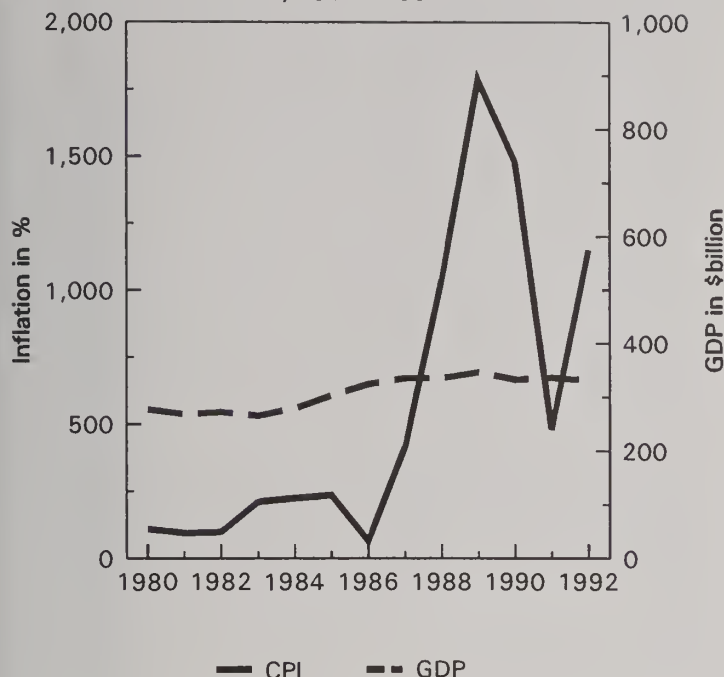
After being temporarily forced from office in September, Collor resigned in late December 1992. Former Vice President Itamar Franco will complete Collor's term which ends in 1995. This political transition continues to sidetrack major reforms.

As of early 1993, Franco's government had had little success in maintaining the confidence of the business and investment community. The new government has maintained a commitment to market-oriented reforms, without economic shocks or surprise programs. Yet this promise has failed to offset growing alarm over the government's lack of direction.

The most visible examples are the appointment of three successive finance ministers and the lack of a clear economic plan during Franco's first 6 months in office.



Figure 6.1

**Brazil: GDP and Inflation, 1980 - 1992**

The private sector is also beginning to question Franco's commitment to Collor's reforms. After suspending Brazil's privatization program for a process review, Franco also issued a decree that makes selling government-owned firms more difficult. Prices of food staples in government-run (Somar) stores were frozen in early March. This fueled fears that the government might revive price controls to fight inflation.

The government's lack of policy direction, combined with Brazil's heavy political agenda, make a strong economic recovery unlikely. In late April 1993, Brazilians voted to retain their current, presidential system of government. This means Brazil faces presidential and congressional elections in 1994.

In October 1993, Brazil begins a scheduled redraft of its Constitution to address reforms in social security, social rights (including labor issues), foreign investment, taxes, and political representation. The direction chosen by the legislature, as well as the actual constitutional changes, will strongly influence the pace of recovery.

While most of the economy continues to suffer from the recession, the impacts vary across sectors. Export and agricultural growth has cushioned a general contraction in industrial output and in services. Both agriculture and export sectors have benefitted from Brazil's aggressive exchange rate devaluation policy, and the government has favored the agricultural sector with expanded support and new modernization programs. Exports are expected to continue to lead growth as market integration with Argentina, Uruguay, and Paraguay proceeds under MERCOSUR.

The 1993 outlook is for continued sluggish growth. GDP may expand by 2 to 3 percent, but with little progress

against inflation, which exceeded 27 percent for March 1993. Controlling inflation is difficult, because Brazil's large domestic debt undermines government credibility and stabilization policy. Debt service also jeopardizes long-run growth by forcing cuts in social programs, education, and infrastructure. In Brazil's currently proposed federal budget, debt service (domestic and international) accounts for 49 percent of expenditures, while only 7 percent of the budget is allocated to education, infrastructure, and agriculture combined.

### Despite Problems, Some Progress Remains

Because many reforms are considered irreversible, there is the perception that some policies are more stable. Of all areas of reform, Brazil has made the most progress in opening the economy. Almost all import restrictions have been lifted. In 1990, the average import tariff was 45 percent, but as of July 1993 it will be only 14.2 percent.

Exchange rate reform has largely corrected the overvaluation of Brazil's currency, which indirectly taxed export sectors through most of the 1980's. Over the past 2 years, aggressive currency devaluation has kept pace with inflation. This has contributed to Brazil's strong export growth and a renewed investment in agricultural export sectors such as poultry, beef, and the soybean complex.

### Agricultural Import Tariffs Continue To Fall

When Collor initiated a broad trade liberalization plan in 1990, he included most agricultural products. Table 6.1 generalizes agricultural import tariffs (ad valorem) for the 1991 through 1993 period. The rates do not reflect tariff preferences granted to products from MERCOSUR countries, or special trade arrangements.

**Table 6.1**  
Brazil import tariffs, selected items<sup>1</sup>

Description	1991	1992	Oct. 1992	July 1993
----- Percent -----				
Commodities:				
Wheat <sup>2</sup>	25	20	15	10
Rice	15	15	15	10
Soybeans	10	10	10	10
Soybean oil	20	15	10	10
Corn	10	10	10	10
Meats	15	10	10	10
Live animals	0-10	0-5	0	0
Tobacco	75	65	40	20
Milk	25	20	20	20
Cheeses	35	30	25	20

Note: These tariff rates do not reflect tariff preferences granted to products from MERCOSUR countries, or special trade arrangements.

1 Where ranges are listed, refer to the tariff schedule for specific commodity rates.

2 Brazil's wheat import tariff has been temporarily reduced to 5%, see following text.

Import tariffs for wheat, tobacco, soybean oil, and cheese have fallen the most. As a temporary anti-inflation measure, Brazil lowered import tariffs on many agricultural items for an indefinite period beginning February 18, 1993, via Directive 88. The list includes tariffs for processed fruits and vegetables, pasta, bakery products, sausages, tallow and -- most importantly for the United States -- wheat, reduced from 15 to 5 percent. While the reduction is in effect, it narrows the tariff differential between U.S. and Argentine imports, improving U.S. competitiveness.

### Agriculture Support Renewed

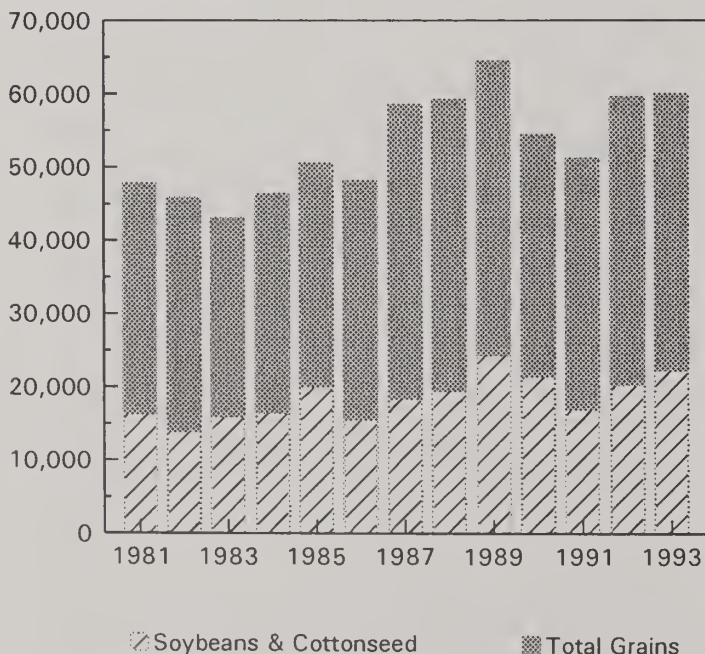
Most of Brazil's agricultural sector continues to benefit from exchange rate and trade reforms, plus renewed governmental support, mainly through expanded subsidized credit programs. For the last 2 crop years (1991/92 and 1992/93), Brazil expanded the availability of official credit through production loans and special programs to stimulate investment.

Previous cuts in support dramatically dropped agricultural production (figure 6.2) in 1990 and 1991 and led to record imports and higher food prices, exacerbating domestic inflation and the recession. The new focus on expanding agricultural output and modernizing the sector reflects the government's recognition of agriculture's role in stabilizing the economy.

Brazil helps finance crop producers through three "official" subsidized programs depending on the type of loan -- production, marketing, or investment. Production credit receives the most funding and has the strongest impact on producer decisions. Under this program, producers finance production and harvest costs through short-term loans.

Figure 6.2

**Brazil: Major Oilseed and Grain Production**  
Thousand metric tons



Official production credit for the 1992/93 crop totalled \$5.2 billion U.S. dollar equivalents, an increase of \$1.0 billion from the previous crop year. Interest rates vary by size of producer and are adjusted for inflation. A new category of loans was created with lower interest rates for "mini" farmers, that entitles them to production credit at 6 percent interest, plus inflation. Larger producers pay 9 to 12.5 percent interest, plus inflation. In comparison, real market interest rates averaged 25 percent during 1992.

The 1992/93 agricultural package also contained a new twist to enhance yields. Crop producers who follow extension guidelines were entitled to 100 percent of production cost financing under the subsidized credit program except for corn and dry beans. This has increased input use and yields.

In 1992, the government established a line of credit for agro-industrial projects, funded for \$2 billion over 4 years to increase capacity, productivity, quality, and efficiency in agricultural production and processing. Loan terms vary depending upon the type of investment; maximum lengths range from 6 to 10 years, and interest rates are from 6 to 9 percent, plus inflation.

One of Brazil's long-run goals is to reduce government intervention in marketing and storage. All 600 government-owned agricultural storage facilities are being privatized, and several state-owned fertilizer and pesticide companies have been sold. While reducing its role in marketing, Brazil has made remaining market activities more systematic.

For many commodities, the government maintains buffer stocks for release (sale) to offset sharp price increases when domestic supplies become tight. To make stock release activities transparent and less disruptive to the marketing system, Brazil implemented trigger prices in 1991.

Stocks are sold when market prices exceed a calculated trigger price for 15 days. Trigger calculation varies by commodity, but is based on a moving average of monthly prices for rice, dry beans, corn, beef, manioc meal and flour, lint cotton, and wheat.

No major changes in production credit are expected. However, Franco's government might strengthen the minimum price program. Traditionally, Brazil has tried to fine tune domestic production by shifting relative minimum prices which are established prior to planting. The minimum price serves as a floor, with the government acting as a residual buyer of agricultural commodities. Because of recurrent funding shortages, the program has been unreliable and has lost credibility and effectiveness in recent years.

### Reforms Are Renewing Investment in Beef Production

Brazil's beef sector has benefitted greatly from aggressive exchange rate devaluation, and the end of trade and price controls. These policy changes are encouraging yield-improving investments in pasture, herd and nutrition management, and animal breeding.



Production and exports of beef and veal have expanded since 1990, but total consumption has been relatively stable. Production in 1992 was 3.8 million metric tons (mmt), almost 4 percent higher than 1991 levels. Total consumption is expected to increase slightly (to 3.6 mmt), but was below the 3.7 average of the late 1980's.

Although tariffs for beef and variety meats were reduced from 20 percent in 1991 to 10 percent in 1992, imports have fallen due to lower purchasing power. Processed beef import tariffs were 30 percent in 1991, and are gradually being reduced to 20 percent by 1994.

Growth in beef exports has offset stagnant domestic demand to absorb expanding production. Exports expanded consecutively in 1990, 1991, and 1992; 230,000 metric tons (mt), 290,000, and 350,000, respectively. These increases are due to greater availability, lower prices, favorable exchange rate policies, and higher European demand for beef. The outlook for 1993 beef exports remains stable at 350,000 mt.

### **Poultry Sector Continues Long-Run Expansion**

Brazil's poultry sector has expanded continuously since 1984. Production is approximately 25 percent of U.S. levels, but Brazil exports almost 60 percent as much poultry as the United States and plays a substantial role in world markets. During the last 2 years, poultry producers benefited from favorable exchange rates, and abundant, relatively low-cost feed.

Exports averaged a stable 326,000 mt the last 2 years, up from 235,000 for 1987-1989. This recent growth is attributed to exchange rate reform, quality improvements, entry into new markets (Japan, for example) and renewed exports to Middle Eastern markets after the Gulf War.

### **Soybean Sector Responded Strongly to Devaluation, Farm Credit**

Brazil is the world's largest soybean producer after the United States, with production averaging about 35 percent of U.S. levels. Soybeans account for about 95 percent of Brazilian oilseed production.

Area expansion and higher yields increased soybean production 35 percent over the past 3 years. Total output rose from 15.8 mmt in crop year 1990/91 to an estimated 21.3 mmt in 1992/93. High input use and good weather contributed to yield growth. Soybean area expanded mostly at the expense of other crops, cotton, corn, pasture, and even coffee.

Renewed growth in the soybean sector is strongly linked to improved access to credit and to exchange rate devaluation. Real soybean prices increased in 1992, leaving producers well capitalized to invest in the 1992/93 crop just harvested.

### **Soymeal and Soyoil**

Brazil's soybean crush usually averages about 78 percent of total production, and is driven by domestic vegetable oil needs and a differential export tax that favors crushing. About 75 percent of soyoil is consumed domestically, while 70 percent of soymeal is generally exported. Export taxes on soybeans are 13 percent ad valorem, while soymeal and soyoil export taxes are 11 percent and 8 percent, respectively.

For the 1993/94 marketing year, soybean crush is projected to increase 10-11 percent, and total soymeal and soyoil production are estimated at 12.1 mmt and 2.9 mmt, respectively. Exports of both products have also expanded due to greater availability, though domestic demand has remained firm throughout the recession.

### **Corn Sector Overresponded to Renewed Support**

Brazil's corn sector responded strongly to higher support prices and expanded credit for the 1991/92 crop year. From the 1991 to 1992 harvests, corn output expanded almost 17 percent to a record 28.5 mmt. However, this depressed domestic prices and some corn area has shifted into soybean production. The 1992/93 harvest is estimated at 27 mmt.

### **Stronger Prices Could Expand 1993/94 Cotton Production**

Brazil produces 50 percent of South America's cotton, and ranks sixth or seventh worldwide. The continuing recession reduced domestic cotton demand in recent years, and the production contracted during the 1992/93 crop year due to lower prices and the weak outlook for demand. Production averaged 725,000 mt for the 1990/91 and 1991/92 harvests, but the 1992/1993 crop is estimated at only 480,000 from less area and dry weather.

Brazil exports lower quality cotton not used by the domestic textile industry, and imports mostly medium, high-quality cotton. Brazil's traditional supplier, Paraguay, had less production, which may create opportunities for other suppliers such as the United States. Total imports may exceed 250,000 mt in the 1992/1993 marketing year.

### **Wheat Sector Reforms Continue To Increase Imports**

Brazil's recent reforms have largely deregulated the wheat sector, and include privatizing domestic marketing and trade, an end to consumer subsidies, cuts in producer support, and a new import tariff regime.

Area planted in wheat should contract in 1993, because producers were discouraged by low yields from adverse weather and diseases that cut 1992 production to 2.8 mmt.

Wheat consumption has been severely affected by the recession and falling per capita incomes. Demand fell from

7.8 mmt in 1988 to about 6.9 mmt in 1992. A weak economic outlook will keep demand curtailed in 1992.

Brazil's wheat imports should exceed 4 mmt in 1993. Argentina will again capture the largest share of the market because its prices are generally lower than Canadian or U.S. wheat, plus Argentine exporters benefit from freight and tariff advantages, and a bilateral wheat trade agreement.

### **Rice Production Continues To Expand Slowly**

The 1992/93 rice harvest is estimated at a little over 7.1 mmt. Since rice is Brazil's most important food staple and is relatively low-priced, consumption has remained firm at 7.5 mmt during the recession (for 1991/92 and 1992/93).

Rice imports of 350,000 mt in 1992/93 were 22 percent below the previous year. Uruguay and Argentina remain preferential suppliers and receive tariff preferences under MERCOSUR.

### **Stable Outlook for 1993/94 Agricultural Production**

Total agricultural output is likely to remain fairly stable for the next (1993/94) production year. The soybean complex and livestock sectors may expand slightly due to continued favorable export demand and the lagged effect of recent investments. Cotton production may see some expansion, but wheat should continue to decline.

The continuing severe recession and high domestic interest rates make a rapid expansion of Brazil's agricultural sector unlikely. In the last 5 years, Brazil's population has increased by roughly 15 million (about 10 percent), but food production has not expanded as rapidly. With declining real incomes, Brazilians are eating less. Per capita consumption of basic staples, rice, dry beans, soyoil, and wheat is below 1989 levels. Once the country improves consumer income and restores economic growth, the agricultural sector may have problems keeping up with food demand.

## *Agricultural and Economic Situation and Outlook (cont.)*

### **Argentina**

*The Argentine agricultural sector and national economy are highly dependent upon agricultural exports. After many decades of a development strategy emphasizing industrialization and import substitution, the administration is committed to liberalization of the economy, including elimination of export taxes on farm products and "privatization" of previously government-controlled marketing and transport facilities. Changes over the last decade have been the rapid expansion of soybeans and soybean product exports and the demise of the USSR as a major trading partner, displaced by expanded exports to South American, Asian, and Middle Eastern nations. [Dave Peacock]*

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Beginning in 1989, Argentina embarked on a campaign to "deregulate, decentralize, and privatize" its national economy. Faced by high rates of inflation, little or no economic growth, and a burdensome external debt the Argentine Government has chosen a dramatically new direction, a policy of liberalizing the economy. This new policy direction includes actions that can be expected to affect Argentine agricultural production and trade over the next decade.

### **Redirection of Macroeconomic Policies**

The Great Depression and World War II set the stage for the policies that have characterized the Argentine economy over most of the last 50 years. The unstable economic conditions and disrupted world agricultural markets were seen as sufficient reasons for Argentina's Peronist government

(1946-1955) to turn inward for its economic development. Import substitution and market intervention became fundamental principles of economic policy. Agriculture was used as a source of revenue for promotion of domestic industry, and agricultural exports were taxed accordingly. The public sector was heavily involved in the transportation and marketing of agricultural products. Although moving with considerable vacillation toward a more market-oriented economy in recent years, the general interventionist policies of the early-Peron era persisted until recently.

It is this legacy of interventionist policy that the Menem Administration (beginning in 1989) set out to reform. The government's economic reform program has achieved some demonstrable results. Inflation, a persistent malady of the Argentine economy, was reduced to 17.5 percent for the 12-month period ending in December 1992. This



achievement is particularly remarkable given the inflation rates of 4,929 percent and 1,342 percent registered in calendar years 1989 and 1990, respectively. Growth in the gross domestic product (GDP) was strongly positive in 1991 and 1992 (an estimated real growth of 8.5 and 6.5 percent, respectively), following consecutive years of decline in 1988 and 1989. A continuation of strong positive economic growth is forecast well into the 1990's. There are indications that investment has been growing again, although firm numbers are not available.

Gross domestic investment, which averaged 20 percent of GDP between 1970 and 1984, had fallen to an average of only 10 percent for the 1985 to 1990 period. Investment will probably not return to an average 20 percent of GDP again in the foreseeable future. These levels are believed to have been inflated by inefficient expenditures made by the public sector. However, current investment decisions made by private sector firms are expected to yield higher rates of return, compensating for the somewhat lower gross investment levels anticipated.

Finally, the Argentine Government has managed to maintain the value of its currency on a par with the U.S. dollar since the passage of its Convertibility Law in 1991. With the replacement of the Austral by the peso in January 1992 (10,000 Australes = 1 peso), an Argentine peso is essentially equivalent to U.S. \$1.

The cloud on the macroeconomic horizon is Argentina's balance of trade. Since 1985, Argentina's exports have exceeded imports from \$1 billion to \$8 billion annually, but registered a trade deficit estimated at \$2.6 billion in 1992. While the convertibility of the peso may have contributed to stability, it also has contributed to an overvaluation of Argentina's currency relative to its trading partners. Inflation since March of 1991 has been 44 percent (CPI), yet no devaluations have been permitted under the Convertibility Law.

During this same period, Brazil, one of Argentina's major trading partners, suffered a domestic recession and aggressively devalued its currency. Consequently, these trading partners have been looking for ways to resolve the trade imbalance developing between their two nations. Late in 1992, the Argentine Government raised its "statistics tax" charged on all imports from 3 percent to 10 percent in an attempt to avoid further deterioration in its trade balance.

### Changing Agricultural Policies

Consistent with the government's policy of reducing intervention in the economy, several actions specifically related to the agricultural sector took place in the past 2 years. Perhaps the most important action was the rescinding of export taxes on agricultural products, except soybeans. Historically, domestic agricultural production greatly exceeded Argentina's rather slow-growing domestic consumption. In a normal year, over half of Argentina's wheat and corn production is exported. The elimination of export taxes in 1991 removed this disincentive to production and tightened the link between international commodity prices

and domestic agricultural economy. Previous Argentine Governments also reduced taxes on agricultural exports, only to reinstate them as pressures grew to tap this source of revenue. Whether this government and its successors can resist the temptation to reimpose export taxes is open to question.

At present, the only remaining charge on agricultural exports (except soybeans) is a 1.5-percent tax to finance INTA, the national agricultural research institution.

With the demise of export taxes, the government now raises revenue by means of a value added tax (VAT) on goods and services and by charging higher prices for publicly provided goods such as gasoline and electricity.

Another action taken by the government to reduce intervention in the agricultural sector was abolishing the Junta Nacional de Granos (JNG, National Grain Board) and the Junta Nacional de Carnes (JNC, National Meat Board). Since 1956, the JNG has served as the primary agency responsible for administration of government policy in the grain and oilseed trade. In recent years, the role of the JNG had diminished to maintaining grain standards, collecting and publishing statistics (including production estimates), and providing analysis to policymakers. The JNC once also exercised monopoly control over exports. Not unlike the JNG, the JNC's main responsibilities had become quality control over cattle, hog, and sheep slaughter; export promotion; and publication of statistics and market information. Because the powers of these Boards already had been reduced significantly, their elimination mainly marks the present government's commitment to making the agricultural sector subject to the interaction of national and international economic forces.

In conjunction with abolishment of the JNG and JNC has been an effort to sell government-owned grain elevators, grain storage, and stockyards to the private sector. Unlike export taxation, these actions are not easily reversible. The short-term impact of privatization of these marketing facilities will probably be minor until the private sector gears up to handling additional responsibilities. In the longer term, private initiative may find a way to improve infrastructure and reduce the relatively large cost of marketing Argentine agricultural products.

A third force is the government's program of fiscal and monetary reform which may have varied impacts on the agricultural sector. Part of the new "rules of the game" is that the agricultural sector should not expect any direct assistance such as price supports. Public investment in general infrastructure is expected to be limited in the near future as the government tries to balance revenues against expenditures and service its international debt. Finally, the government's plan to support the Argentine peso at the conversion rate of U.S. \$1 could result in a continually overvalued exchange rate, lowering the return to domestic production and agricultural exports.

With the elimination of export taxes and greater confidence in the economy, Argentine farmers may be prepared

to seek out and invest in production enhancing technologies. It can reasonably be expected that technological alternatives to improve grain yields will be available whenever farm level economics and the farmers' confidence in the economy justify their use. Present grain yields are significantly below those in the United States, despite Argentina's very favorable climate and soil conditions. When it is clear that additional resources are flowing into agricultural production, increases in grain crop yields should be expected.

### Changing Trade Patterns - Commodities

The agriculture of Argentina has been very dependent upon the international market. In turn, the economy of Argentina is very dependent upon agricultural exports. After several decades of policies favoring industrial development, 65 percent of the nation's 1992 exports were still derived from the agricultural sector.

While the critical importance of agricultural exports continues, there have been notable changes in the relative importance of the commodities traded (figure 7.1). Grains and cereal products typically were the most important category of exports until oilseeds and oilseed products captured the premiere ranking in the late 1980's.

The rapid rise in oil crops and oilseed product exports can be related to the dramatic expansion of soybean production from 1975 forward (figure 7.2). Argentine soybean yields have been comparable to U.S. yields since 1975.

While still a very insignificant crop as late as 1975, soybeans became Argentina's second largest export by 1980. Higher export taxes imposed on soybeans over soybean products during the 1980's contributed to an expansion of domestic crushing. As more of the Argentine soybean crop was crushed domestically exports of oilseed meal

Figure 7.2

### ARGENTINA PRODUCTION

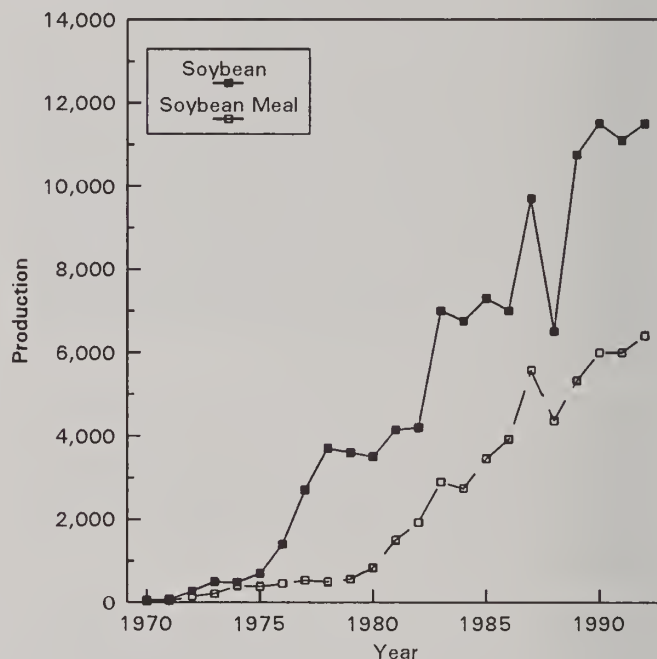
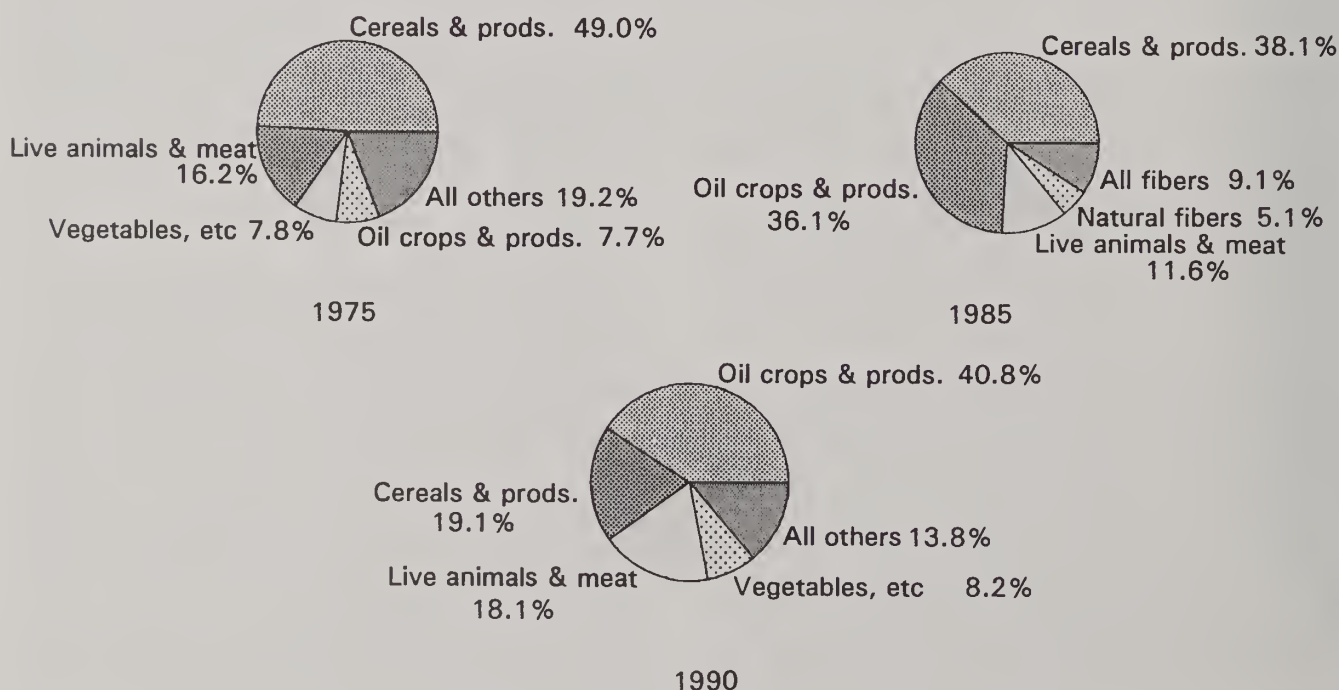


Figure 7.1

### Argentine Agricultural Exports





overtook soybean exports. By 1990, oilseed meal had become the largest agricultural export and unprocessed soybeans held a third position of importance behind exports of oilseed meal and wheat. Even when the Menem administration eliminated export taxes on other agricultural products, including soybean oil and meal, unprocessed soybeans remained the exception, paying an export tax of 3 percent.

From 1975 to 1990, Argentina grew from almost no soybean exports to vying with Brazil for the position of the world's second or third largest exporter. Argentina has also become the world's second largest exporter of oilseed meal, behind Brazil and ahead of the United States. Further, by the late 1980's Argentina had surpassed both Brazil and the United States as an exporter of soybean oil.

Argentina is also the undisputed world leader in sunflower oil exports, accounting for about half of all world exports in 1990 and 1991. Sunflower oil ranked as the fourth most important agricultural export behind oilmeals, wheat, and soybeans in 1990.

Grains and cereal products, even though their relative contribution to trade has declined, are still very important agricultural exports from Argentina. In 1990, cereals represented \$1.4 billion in revenues and 19 percent of agricultural exports. Wheat and corn have alternated, over time, as the most important grain export. While important as exports to Argentina, neither their exports of wheat or corn represent a major share of world trade.

Live animals, meats, and hides was the third largest category of agricultural exports in 1985 and 1990. Even though superseded by oilseeds in recent years, live animals, meats, and hides continues to be a significant category of exports, representing \$1.3 billion or 18 percent of agricultural export value in 1990.

The relative importance of Argentina's major exports--soybeans and derivatives, wheat, corn and beef--are likely to remain the same over the next few years. The rapid expansion of soybeans exhibited in the 1980's will not continue. Although area planted to soybeans may expand modestly, the limits of suitable land are being reached. Nor can yields of soybeans be expected to increase rapidly. Increased investment in crop production may be expected to push exportable supplies of wheat and corn upward in those years when farmers' expectations of world prices are favorable.

### Changing Trade Patterns - Trading Partners

Not only has the relative importance of different export commodities changed over time, but the importance of the various markets for Argentine exports has changed as well (figure 7.3). The Argentine Government negotiated bilateral agreements expanding grain trade with the Soviets in 1980. Wheat shipments destined for the USSR increased nearly ten-fold in 1980 and represented 51 percent of all Argentine wheat exports. By 1981, wheat sales to the So-

viets were 79 percent of Argentine exports and still over 72 percent in 1982. Total Soviet wheat imports fell markedly from 1985 to 1986, in a large part due to declining world oil prices. In turn, Soviet purchases of Argentine wheat dropped precipitously in 1986 and have remained small since.

The same pattern was true for Argentine corn trade with the Soviets from 1980 to 1986. Although the Soviets negotiated a second grain agreement with the Argentines for the 1985-90 period, the USSR never fulfilled its side of the bargain.

Since 1985, Argentine wheat and corn trade, increasingly independent of government intervention, has been focused more upon South American, Asian, and Middle Eastern markets. The Argentines have been generally unprepared to finance or subsidize exports, but in October 1992 the government did institute a program of modest export rebates to stimulate exports and counteract their declining balance of payments situation. Wheat and grain exports will receive rebates valued at 2.5 percent of f.o.b. values.

In 1990, 36 percent, 35 percent, and 18 percent of Argentine wheat exports were shipped to South American, Middle Eastern, and Asian nations, respectively. Brazil has evolved as Argentina's most significant wheat market. In 1990, Brazil purchased 31 percent of Argentina's wheat exports. Preliminary numbers suggest that Brazil's imports may have represented as much as 50 percent of Argentine exports since then. Since 1987, Argentina has completely displaced the United States and Canada as the major supplier of Brazilian wheat. In 1990 and 1991, Argentina represented 50 percent or more of Brazil's wheat imports.

This major change in wheat trade patterns has its roots in the ongoing efforts of Argentina and Brazil to strengthen regional trade relationships. The two countries established a bilateral agreement calling for Brazil to purchase at least 2.0 million metric tons (mmt) of Argentine wheat per year. Further, Brazil has assigned a countervailing duty against U.S. EEP as a part of its commitment to discourage subsidized imports in the region. The advent of MERCOSUR will help maintain Argentina's position in the Brazilian wheat market.

Except that patterns are more erratic, the regional distribution of Argentine corn exports from the middle 1980's through 1990 evolved in a manner similar to wheat exports (figure 7.4). The USSR's dominance as a corn export market ended abruptly in 1986. Although the Soviets returned to the Argentines for significant shares of their corn exports in 1987 and 1988, by the end of the decade purchases had become inconsequential. By contrast, the South American share appears to be expanding. In 1990, South America represented 20 percent of Argentine corn exports, compared to 5 percent in 1982.

The USSR was also a major player in the Argentine soybean market from 1980 through 1985 (figure 7.5). The USSR's share of Argentine soybean exports went from 27 percent in 1980 to 46 percent, the high point, in 1983.

Figure 7.3  
**Argentina's Wheat Exports**  
 Market Shares of Principle Importing Regions

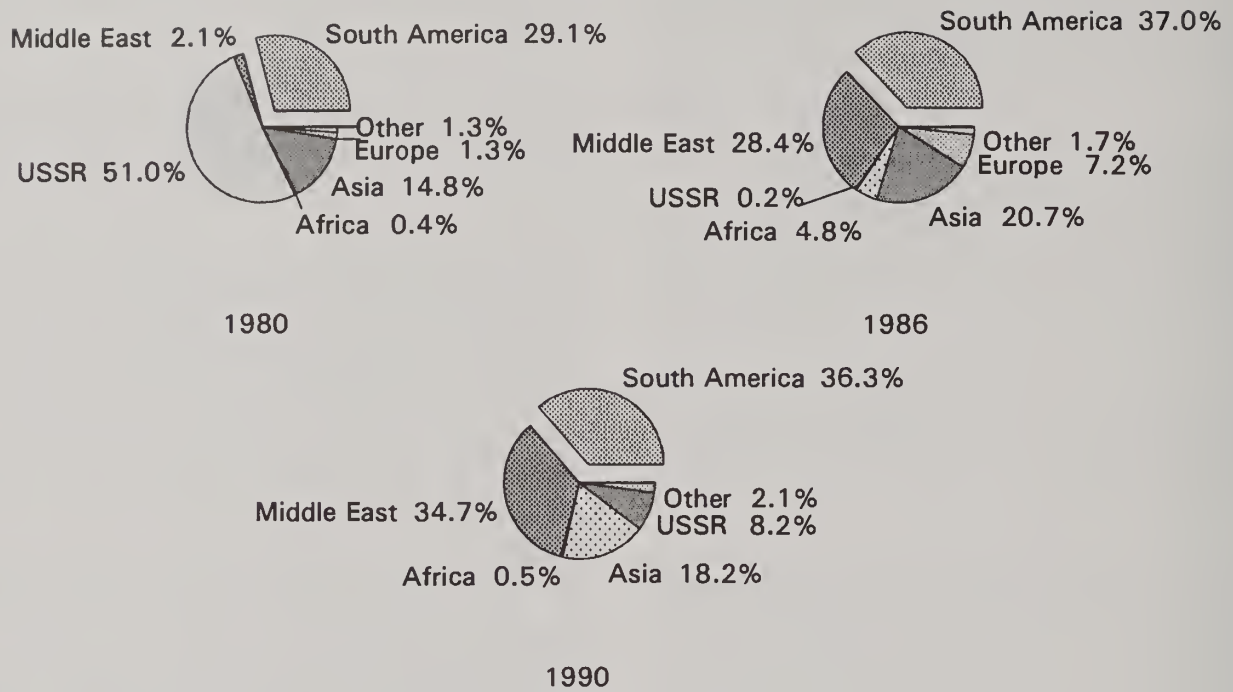


Figure 7.4  
**Argentina's Corn Exports**  
 Market Share of Principle Importing Regions

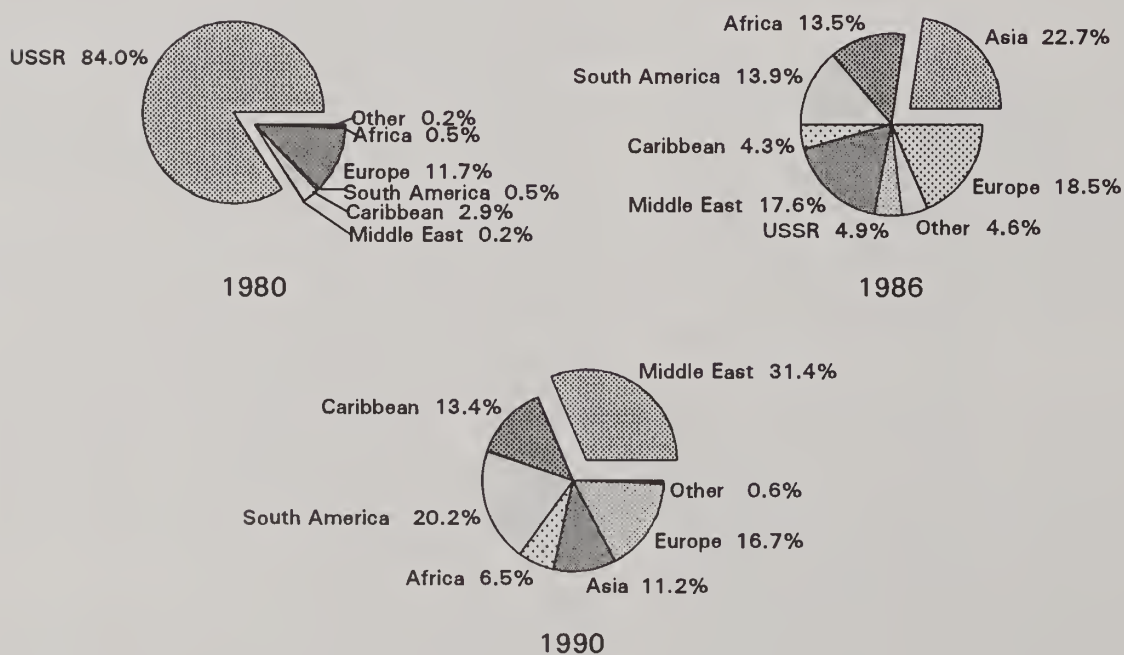




Figure 7.5

## Argentina's Soybean Exports

Market Shares of Principle Importing Regions

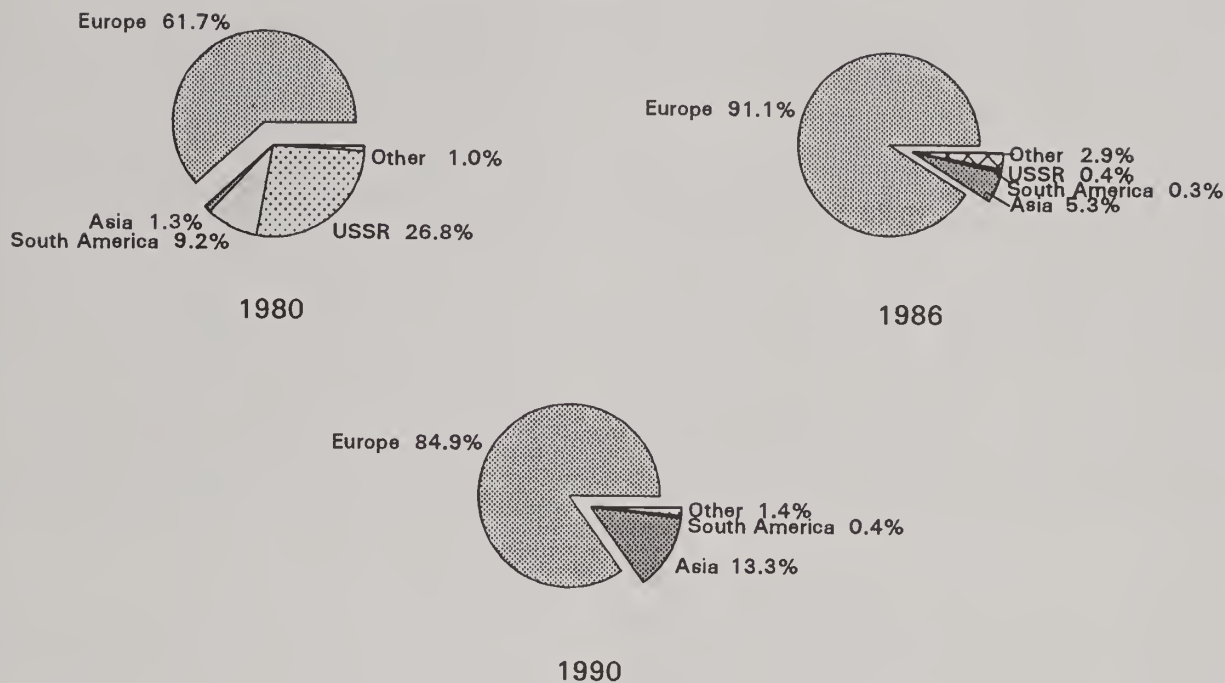
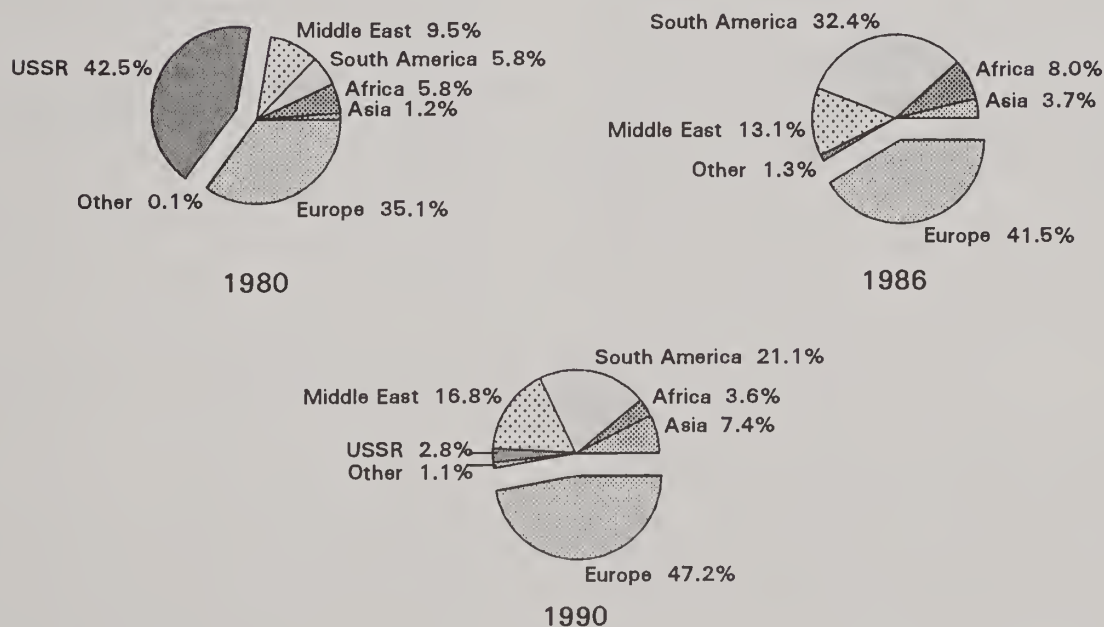


Figure 7.6

## Argentina's Fresh/Frozen Beef Exports

Market Shares of Principle Importing Regions



United Nations Trade Data

The Soviet purchases from Argentina to almost nothing by 1986. By 1990, the Soviets had disappeared from the Argentine market, although they continued to buy substantial amounts of soybeans but from other suppliers. When the Soviets left the market in 1986, European purchasers filled the slack. European purchases have represented from 85 to 94 percent of Argentine soybean export sales for most years from 1986 forward.

The pattern of export trade of Argentina's fresh and frozen beef is similar to the patterns exhibited by other Argentine exports (figure 7.6). In 1980, the USSR represented 43 percent of Argentine fresh beef exports, while the European share was 35 percent. The two regions accounted for approximately equal shares through 1984. From 1985 onward, the Soviets disappeared from the market, leaving it to Europe and the expanded imports from South American and the Middle East. By the end of the decade (1989-1990), approximately half of fresh and frozen beef exports were destined for Europe, slightly over 20 percent were shipped to other South American countries, and about 17 percent went to the Middle East.

Argentine exports of wheat and corn to Brazil are expected to expand over time. Although Brazil has become a more important trading partner, Argentina's gain in this market has largely been a diversion of trade from other suppliers. With the size of the Brazilian population and economy, expansion in grain imports by Brazil should be expected when its economy overcomes its current recession. Argentina will likely benefit from this expanded grain market. Other South American countries may expand imports from Argentina in the near future, but Argentina's market in the region is largely dependent upon developments in Brazil. South American is not a good prospect for increased soybean and soybean product exports since several other nations in the region are already exporters. Argentina will need to look to Europe and the development of Asian and Middle Eastern markets for increased soybean exports. The government's efforts to develop the Asian market and its ties with the Middle East may continue to be an expansion area for corn, wheat, and beef. It is very unlikely that

the former Soviet Union will represent much, if any, of Argentina's agricultural export trade in the near future.

## Summary

Argentina is expected to hold firm to the economic reforms undertaken in the past three years, and the prospects for general economic growth appear to be promising. The agricultural sector's future will depend upon its capacity to generate investment, the outcome of the promise of reduced marketing costs through "privatization" of marketing and transportation, and the impact fixed exchange rate on the price agricultural goods bring in the international market. Soybeans and derivatives will continue to be Argentina's most important agricultural export. The prospects for exports to other South American countries, dominated by the importance of Brazil, are good. While the prospects for exports to the former Soviet nations, so important in the early 1980's, are at best limited. Finally, the Argentine economy's dependence on agricultural exports will continue into the future even though the current prospects of rapid and sustained economic growth materialize as envisioned.

## References

- Foreign Agricultural Service. Attache Reports, various commodities and dates.
- Mielke, Myles J. (1984). *Argentine Agricultural Policies in the Grain and Oilseeds Sectors*. Economic Research Service, Foreign Agricultural Economic Report 206. September.
- Zeimetz, Kathryn A. (1987). *Effects on the USSR of the 1980 U.S. Embargo on Agricultural Exports*. Economic Research Service, Staff Report AGES870511. December.
- Zeimetz, Kathryn A. (1991). *USSR Agricultural Trade*. Economic Research Service, Statistical Bulletin 608. August.



## What Factors Affect Grain Import Decisions?

*The future prosperity and vitality of the U.S. grain industry depend on the ability of the United States to compete in world markets. The United States exports more than 50 percent of its wheat crop, 30 percent of its soybean crop, and 20 percent of its corn crop. With a leveling of domestic food consumption, the importance of world markets to U.S. agriculture can only increase. [Emily McClain, Constanza Valdes, Erin Dusch, Parveen Setia, Alan Webb, and Mark Ash]*

The world market is becoming more important and its competitive nature is changing. Key foreign buyers such as Japan, Taiwan and Korea are becoming more discriminating because of their highly developed food processing industries. These purchasers seek grains and oilseeds with characteristics suited specifically to their end-use needs. Other buyers, such as the Philippines and Brazil, have recently eliminated or reduced direct government involvement in wheat purchases, and a number of other countries have liberalized their grain purchasing procedures. Thus, processors and end-users in foreign markets are assuming a more dominant role in grain purchase decisions. As the world's largest exporter of grains and oilseeds, the United States will have to continue to be responsive to the specifications of its foreign customers to be competitive in world grain markets. (Alan Webb)

### Brazil: Privatization Changes the Profile of The Wheat Sector

Brazil has fundamentally reformed its programs in the wheat sector. In 1991, private imports were allowed for the first time in 25 years. Other changes include domestic marketing privatization, an end to consumer subsidies, and lower producer support. These reforms have caused real producer prices of wheat to decline. Wheat production has fallen steadily from an average of almost 6.0 million metric tons (mmt) in 1987 and 1988 (when guaranteed prices were first lowered) to an average of 2.9 mmt in 1991 and 1992. Brazil imported almost 4.7 mmt of wheat in 1991.

After import liberalization, Brazil established wheat import tariffs to provide transitional protection to domestic producers. These tariffs vary by origin, and are being reduced over time (table 8.1).

Under this tariff scheme, MERCOSUR countries receive preferential tariff rates, 5 versus 15 percent on non-MERCOSUR wheat, on 1 January 1993. The preferential tariff gives Argentina a considerable net import price advantage in Brazil's market. Argentine wheat also benefits from an exemption of a maritime import tax of 25 percent on freight costs. This exemption was estimated to reduce the cost of importing Argentine wheat by about \$5.00 per ton in August 1991.

**Table 8.1**  
Brazil wheat import tariffs

Effective date	Non-MERCOSUR tariff	MERCOSUR tariff	Tariff difference
	---- % ad valorem ----		Percent
30 June 1991	25.00	13.25	11.75
31 Dec. 1991	25.00	11.50	13.50
			0.00
1 Jan. 1992	20.00	9.20	10.80
30 June 1992	20.00	7.80	12.20
31 Dec. 1992	20.00	6.40	13.60
			0.00
1 Jan. 1993	15.00	4.80	10.20
30 June 1993	15.00	3.75	11.25
31 Dec. 1993	15.00	2.70	12.30
			0.00
1 Jan. 1994	10.00	1.80	8.20
30 June 1994	10.00	1.10	8.90
31 Dec. 1994	10.00	0.00	10.00

In a move to dampen inflation, Brazil temporarily reduced import tariffs for wheat and other agricultural and food products in mid-February 1993. This lowered the non-MERCOSUR wheat import tariff to 5 percent and the MERCOSUR tariff to 1.6 percent -- narrowing the tariff differential between origins from 10 to 3.4 percent. The government has not decided how long the reductions will be in effect, but in the short run they could increase U.S. exports to Brazil by reducing Argentina's price advantage.

### Price Is The Most Important Factor Affecting Brazilian Imports

Brazilian millers and importers rank price, followed by quality, as the most important factors in wheat import decisions. Price is most important because Brazil's largely poor consumers cannot afford to pay a premium for wheat products. A lengthy recession in Brazil has lowered wheat demand, and excess milling capacity means that flour market competition is intense and profit margins are narrow.

When ranked by price, Argentine wheat was rated first because of preferential treatment of MERCOSUR imports into Brazil, with the United States and Canada tied at sec-

ond place. Argentine wheat consistently has the lowest f.o.b. price, in addition to a lower import tariff, a maritime tax exemption, and generally lower freight costs.

Although price is the main form of competition in Brazil's wheat and wheat product markets, quality is becoming increasingly important. A major consideration is the fact that most wheat is consumed as bread, and millers need to supplement lower protein South American wheats with higher protein North American wheats to improve the bread-making qualities of flour.

Canadian and U.S. wheat were ranked the highest according to quality, followed by Argentine wheat. Canadian wheat is perceived as the best for overall quality, consistency, cleanliness, and extraction rate. Millers believe they can maintain or expand market share through maintaining or improving quality.

Among specific quality attributes, millers ranked protein and gluten as the most important factors affecting purchases. Moisture and yield-related factors generally were ranked third or fourth, including test weight, extraction rate, dockage and other nonmillable materials, and kernel size.

#### ***Cleaner Wheat Could Improve U.S. Market Share***

Millers stressed the importance of yield-related factors to mill profitability; competitiveness forces them to seek the highest flour yield for their money. Nonmillable materials, (including shrunken and broken kernels), lower flour yield and profitability, and are not fully factored into the discounts taken when impurities exceed contract specifications. Ad valorem tariffs and high freight combine to increase the costs of dockage and foreign materials to importers.

Millers desire cleaner U.S. wheat, but would only pay a small premium, if any, for it. Millers believed they would probably never be forced to pay a premium for U.S. wheat because they could buy cleaner Canadian wheat at a competitive price. Because the main competitive factor between Canadian and U.S. wheat is price, it is hard to estimate the level of increased U.S. exports to Brazil given cleaner wheat.

On the other hand, most millers emphatically stated they would buy more U.S. wheat if it were cleaner, other things equal. Based on blending and use information, Brazilian millers would like to use U.S. or Canadian wheats for at least 30 percent of their bread flour, and more for pasta flour. The United States will thus continue to compete with Canada for the blending segment of the import market.

#### ***Other Factors Affecting U.S. Exports***

Because Brazil will continue to be a substantial importer, there is value in competing for market share. Canadian and Argentine exporters apparently recognize this fact, and are aggressively pursuing Brazil's market. Brazilian millers seemed confused about why they are receiving little at-

tention from U.S. exporters. This implies that the United States could be doing more to improve market share.

Brazilian millers ranked Canada and Argentina higher than the United States in providing trade service performance. These two suppliers are perceived to be more flexible and ready to resolve problems as they develop, with minimum red tape. Like importers of most products, Brazilians desire a consistent product from reliable suppliers, with minimum problems in the import transaction and delivery process. This desire is heightened because mills try to minimize wheat inventories, and shipment problems can impose indirect costs such as having to temporarily shut down milling operations.

Several importers cited examples of some U.S. export firms only offering price quotations in bushels, requiring importers to make the necessary conversions to metric tons. While this is a small point, many Brazilians perceive this as an unwillingness to meet their needs and a lack of desire for their business.

U.S. exporters could also improve their competitive position by sponsoring educational campaigns on contract specification, and on the uses and characteristics of U.S. wheats. Millers were strongly interested in information on trouble-shooting problems that arise in milling and end-use flour performance. Potential problems make them hesitant to experiment with new varieties and subclasses of wheat.

#### ***GSM Export Credit Program Becoming More Important to Exports***

Argentina, (with lower net import prices under current market and policy conditions) will continue to capture the highest share of Brazil's wheat import market. Although the EEP has expanded U.S. exports in recent years by lowering import prices, it has lost effectiveness in Brazil because last year a 27.9-percent countervailing or compensatory duty was imposed on imports of subsidized U.S. wheat through the EEP. As a result, Brazilian importers bought only 131,000 metric tons (mt) of the total 500,000 EEP allocation, and these imports were made before the countervailing duty was imposed. The countervailing duty expired in March 1993, but the threat of reinstatement will strongly discourage further EEP purchases.

Brazil's industry reports that the Canadians are offering credit of too short a duration to finance imports from time of purchase until the flour is sold. Thus, private sector use of GSM credit guarantees would increase U.S. competitiveness by lowering the costs of buying and milling U.S. wheat, relative to Canadian wheat.

High commercial interest rates in Brazil influence stockholding decisions and increase operating costs. Because they lack access to international financing, many small- and medium-size mills are forced to buy imported wheat indirectly, either from trading companies, through milling pools, from other mills, or through government sales of buffer stocks. GSM credit could help medium-size mills



import directly or encourage the formation of import pools to buy U.S. wheat. (Emily A. McClain)

## Venezuela: Increasing Competition for Its Wheat Market

Carlos Andres Perez began his presidency in 1989 with the goal of creating a more diversified and open economy by reducing government intervention. Venezuela instituted numerous reforms to secure a loan agreement with the International Monetary Fund (IMF) and become a member of the GATT. The measures affecting the agricultural sector included the unification of the exchange rate, cuts in agricultural and gasoline subsidies, the removal of the fertilizer subsidy, and a reduction of the credit subsidy for farmers.

The economic reform program poses adjustment problems for Venezuelan producers and consumers. Rising costs of production and interest rates for farmers contributed to increases in food prices. Perez has maintained some social programs (for example, a 4-kilogram per month rice bonus distributed to 1 million families) to help ease the reform's burden on the Venezuelan poor. However, Perez remains committed to liberalization despite social unrest and a growing mistrust of government.<sup>1</sup>

In spite of years of subsidies to encourage production and consumption of domestic rice and corn, the demand for wheat products continues to increase. In 1992, wheat products accounted for 40 percent of total human grain consumption. Wheat is important (table 8.2) in the Venezuelan diet for several reasons. It is a "filler food" that provides an inexpensive source of calories. Also, since the out-migration from rural communities during the oil boom years of the 1970's, wheat bread has competed with the "arepa", a traditional Venezuelan bread made from white corn. Arepas, unlike wheat breads that are easily packaged and stored, take time to prepare and must be consumed immediately or lose much of their taste. As the population has shifted to the cities and more women have entered the workforce, the need for convenience has increased. Lastly, the consumption of wheat products is aided by Venezuela's large Italian immigrant population whose traditional diets include wheat bread and pasta. Venezuela is the largest per capita consumer of pasta after Italy.

Venezuela, a tropical country, has highly variable rainfall patterns that limit the production of many crops and make the production of others less reliable. White corn and rice are the most important food grains produced in Venezuela. Venezuelan wheat production is limited to the Andean highlands region. Domestic output in 1992 was about 500 tons and was used to satisfy local demand. Efforts to develop wheat varieties adaptable to lower altitudes have been unsuccessful.

Venezuela relies on imported wheat to satisfy all domestic demand for wheat breads, pasta, and bakery products. De-

**Table 8.2**  
Venezuela's per capita grain consumption

	1990	1991	1992
	----- Kilograms -----		
White corn	52	56	57
Wheat	48	49	51
Rice	16	16	18

Source: Agricultural Situation Reports,  
Office of the AgCounselor, Caracas

spite minimal domestic wheat production, per capita consumption of wheat (51 kg) rivals domestically produced white corn (57 kg).<sup>2</sup> The United States supplied the majority of Venezuela's wheat imports until the late 1980's, when competition from Canada began to intensify. The Canadians had over half of the Venezuelan market during 1991.

### Wheat Import Policies Reformed

As part of the economic reform program, the Venezuelan Government reduced its role in the wheat importing process. The government continues to encourage consumption of domestic corn and rice over imported wheat, but the obligations of GATT membership limit policy measures affecting wheat imports. Venezuela is currently using a price-band system to help regulate wheat imports. The price band establishes a minimum import price for wheat and imposes an ad valorem tariff if the international price falls below the floor price. Complaints from corn and rice producers that the ad valorem tariffs were ineffective in dealing with subsidized commodities entering Venezuela (particularly the EEP wheat from the U.S. in 1992) forced the government to modify its price-band system. As of January 1993, an additional surcharge is added to the specific duty. The surcharge is based on a formula equal to the difference between a minimum import price and the CIF price. The minimum import price for wheat is set at U.S. \$150 per ton.

### Wheat Imports and Competition for the Venezuelan Market

Venezuela has satisfied this growing demand for wheat products by importing nearly 1 mmt of wheat each year since the early 1980's (figure 8.1). High-protein spring and durum wheats from North America make up the majority of wheat imports because of consumer preference for quality bread and pasta products. While the United States has been Venezuela's traditional supplier, U.S. market share dropped from 86 percent in 1990 to 34 percent in 1991. Competitive prices, aggressive marketing and a high-quality product helped Canada gain a larger share of the Venezuelan market. The United States regained some of its lost market share with the help of two export pro-

<sup>1</sup> Venezuelans protested the reform program with riots in February 1989; and there were two attempts to overthrow the government in 1992.

<sup>2</sup> All per capita consumption information from U.S. Wheat Associates and the Office of the AgCounselor, in Caracas.

grams. Venezuelan importers bought 400,000 mt of wheat under the EEP and used \$42 million in credit guarantees under the GSM-102 short-term credit guarantee program to buy U.S. wheat during 1992.<sup>3</sup> U.S. market share recovered to 45 percent in 1992 while Canada supplied 40 percent of the market.

Although Canada and the U.S. dominate the Venezuelan market, competition from smaller exporters will probably

3 1992 was the first year Venezuela received an EEP allocation.

Figure 8.1

**Venezuela--Wheat imports: Total, U.S. and Canada**  
Thousand metric tons

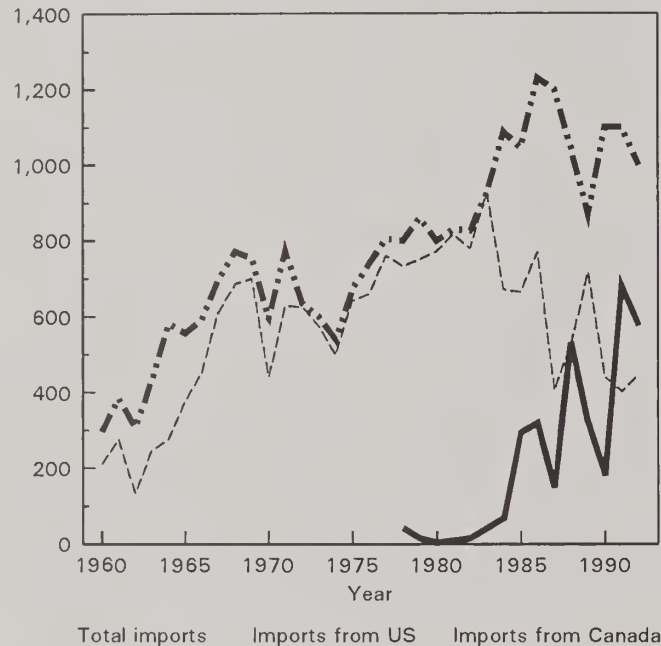


Table 8.3

**Quality characteristics of U.S. and Canadian wheat**

	Canada	U.S.
Protein:	Higher amounts of protein (0.3 to 0.5 percent more), than specified in the contract.	Meets contract specifications.
Gluten:	Superior gluten quality according to mills' baking tests.	
Cleanliness:	Cleaner with dockage less than 0.4 percent, less shrunk and broken kernels and foreign material.	0.8 percent dockage
Uniformity:	More uniformly sized kernels than the U.S.	----
Test weight:	High test weights (60 to 62 pounds per bushels).	Test weights approx. 58 pounds per bushel
Moisture:	Higher moisture than U.S. wheat average of 12.6 percent.	Average of 12.2 percent

increase. Venezuelan millers have been supplementing their North American imports with small quantities of wheat from the EC, Saudi Arabia, and Argentina to blend with spring wheat.

**Factors Affecting Venezuelan Import Demand**

Venezuelan millers consider quality, price, and trade servicing as the most important factors in making wheat purchase decisions. Venezuelans tend to be quality sensitive, and they enjoy the high-quality products from the North American spring and durum wheats. However, price has become especially important as both millers and consumers feel the effects of higher prices that came with economic reforms. Millers indicated that as the Venezuelan market becomes more open and less regulated, they will have to stay competitive on both price and quality of flour to continue in business. Currently, there are 11 wheat milling companies and 15 mills in Venezuela. The milling industry has been integrating with pasta producers and is highly concentrated. Out of 11 milling companies, 3 control 70 percent of the market. The supplier's ability to provide adequate, timely, and reliable supplies also influences purchasing decisions, provided quality and prices are com-

petitive. The United States ranked well in this area because of its year-round supplies and proximity to Venezuela, particularly from the Gulf ports. Respondents emphasized that timeliness of shipments is crucial, because they store only limited amounts of wheat.

**Wheat Characteristics Important to Millers**

Wheat flour characteristics that are important to Venezuelan millers include gluten quality, protein quantity, dockage levels, moisture, falling number, and test weight. Millers value these specific characteristics because they affect flour quality and extraction rate. Venezuelan millers



ranked the differences between spring and durum wheats from the U.S. and Canada (table 8.3).

### ***U.S. and Canada Will Continue To Supply Venezuelan Market***

If trends follow the last 3 years (table 8.2), Venezuelan wheat consumption will continue to rise. With almost no domestic production, Venezuela will need to increase wheat imports in order to meet consumer demand for products.

Despite competition from Canadian wheat, Venezuelan importers will still rely on U.S. imports to meet demand. Frozen lakes and waterways in Canada during the winter hinder wheat exports.

If interest costs declined and/or storage facilities improved significantly, Venezuelan buyers would have the option of buying more wheat from Canada to meet their needs for the winter season. Under these scenarios, millers would no longer have to rely on one import source year after year. (Erin Dusch and Parveen Setia)

### **Mexico: Corn Import Demand**

Corn is the most heavily subsidized farm commodity in Mexico. Producer and consumer subsidies for corn absorb over 75 percent of CONASUPO's (the government regulatory agency for agricultural commodities) subsidy budget. Corn has attracted large subsidies because it is the single most important crop produced by low-income growers and the basic staple of most rural and urban consumers.

CONASUPO purchases about 40 percent of domestic production, while the remainder of the crop is purchased and marketed by the private sector. Prior to 1985, CONASUPO was the primary corn importer, accounting for about 65 percent of corn imports (to meet requirements for subsidized tortilla production), with licensed imports by private processors accounting for the remainder. Since 1986, the share imported by CONASUPO has declined to less than one-third of total imports, while that of corn-tortilla producers has increased.

Mexico is the world's second largest developing country importer of corn. In 1988-92, corn imports represented 17 percent of domestic corn supply, reaching 2.5 mmt per year out of total grain imports of 7.4 mmt. The United States typically supplies most of Mexico's corn imports because of U.S. wheat price advantages and Mexican Government purchase procedures giving preference to imports under concessional and commercial credit programs. Imports from the United States are mostly of Grade No. 2 yellow corn for food use. During the 1988-92 period, over 90 percent of Mexico's total corn imports were from the United States. USDA authorized a total of \$1.0 billion worth of GSM-102 short-term credit guarantees for corn between 1985-89. Annual corn exports under GSM-102 averaged 2.0 mmt during fiscal years (FY) 1985-1989, or about 82 percent of total commercial U.S. corn exports to Mexico. The United States has allocated guaranteed loans

to purchase \$50 million of corn for human consumption and \$150 million of feed grains in FY 1993.

Mexico's annual corn imports are expected to range between 1.8 and 2.4 mmt during 1993-1999. Production growth will be relatively slow during this same time period, about 1.9 percent per year, because producer price declines will curtail yield growth, expected returns, and area planted.

Food and nonfood uses of corn are also likely to increase at an annual rate of 1.3 percent. Although corn is primarily a food grain in Mexico, restrictions on using corn for feed probably will be eased. Feed use of corn is estimated to expand by 0.9 percent annually as trade policy and domestic price reforms make it increasingly competitive with other feed grains.

### ***Price Is an Important Factor Affecting Mexican Corn Imports***

Mexico's corn milling industry identified price as the most important factor for choosing a supplier of corn imports. The proximity of U.S. production centers and the relative ease of transporting grain to Mexico provide a freight advantage over other suppliers. Shipping rates to east and west coast ports from the U.S. Gulf were \$22.56 per ton and \$12.22 per ton, respectively, in 1989. By contrast, shipping rates from South American ports were \$15-20 per ton higher. In addition, the Mexican corn wet-milling industry indicated that credit availability and reliable scheduling of deliveries are major factors in choosing a corn supplier.

Most of Mexico's corn purchase contracts are based on U.S. No. 2 yellow corn, and contracts always specify moisture up to 15-15.5 percent (table 8.4). While some wet millers desire information on corn starch content, none typically specify it in contracts due to the higher cost involved. For the tortilla industry, the absence of aflatoxin is very important. Mexico has required aflatoxin tests on all corn imports for several years and rejects any shipments exceeding 20 parts per billion (PPB).

Tortilla producers and starch manufacturers indicated that the amount of corn breakage is a critical factor in their production process. Broken corn will not steep in the alkali solution. Broken corn is of less concern for feed millers. Processors separate all broken corn and foreign materials (BCFM) from corn and combine it with milling byproducts for sale as feed. This means that millers' profit margins decline if a shipment of corn has high BCFM.

Corn with high oil content is attractive to some users in the wet-milling and feed industries, although the premium is currently too low to contract production and cover handling costs of identity-preserved rail shipments from the Midwest.

Although Mexican corn buyers clearly prefer white corn to yellow corn, because of complaints from consumers about the lower quality of yellow corn, they have never been

**Table 8.4**  
CONASUPO specifications for corn imports<sup>1</sup>

Factor	Specification
Moisture	No penalty at 14 percent or less; reject greater than 18 percent; weight discount of 1 kg per percent above 14 percent plus an aeration fee; premium of 1 kg per 0.1 percent below 14 percent up to 8 percent.
Damaged kernels	No penalty at 10 percent or less (no more than 4 percent can be heat damaged or 2 percent fungus-damaged); reject greater than 10 percent; no premium or discount.
Foreign material	No penalty at 2 percent or less; reject greater than 2 percent; no premium or discount.

<sup>1</sup> May vary depending on region.

willing to pay a premium for white corn. In the late 1980s, Mexico imported 700,000 mt of white corn from the United States. On one rare occasion when relative prices were favorable (1989/90), Mexico imported a small amount of South African white corn.

### **Concern About BCFM**

Most of the end-users have concerns about BCFM content. While many would prefer corn that had the U.S. No. 2 BCFM maximum of 3.0 percent, few received any shipments that would grade as such after unloading at the port. There is little incentive for buyers to contract for U.S. No. 1 because the grain breaks up after certification. Sample surveys have identified the average increase in BCFM is 2 to 3 percent between export certificate and destination and for each handling thereafter. Most breakage occurs during loading, and little additional breakage occurs during transit. One company reported that it would pay up to 2 percent more for corn delivered by rail than transported by vessel, largely because of the lower breakage rate.

Mexico does not grade domestically produced corn, because under the licensing system millers must purchase all of the domestic crop first, regardless of quality, before obtaining an import license.

### **Summary**

Grain exports will likely continue to be important to U.S. agriculture and competition from Canada, EC, and other exporters makes it imperative that the United States maintain its high-quality grain exports at favorable prices and credit terms. The above discussion illustrates this point; importers in Brazil, Venezuela, and Mexico all stated price was the primary criteria when choosing grain suppliers. Since economic reforms have taken place in these three countries, import purchasing decisions are being assumed by end-users and contract specifications for delivery are requiring exporters to provide grains with certain qualities, or characteristics, (i.e., oil content, breakage). The availability of credit and providing trade services are also important factors considered by importers in these three Latin American nations. (Constanza Valdes and Mark Ash)

### **References**

- Agricultural Situation Reports. Various issues. Office of the AgCounselor, Caracas, Venezuela.
- Setia, Parveen and Erin Dusch (1993). "Venezuela: Determinants of Wheat Import Demand." ERS Staff Report forthcoming.

*The World Bank Atlas* (1992).



## Cuba's Minimum Import Needs in the 1990's

*Cuba is critically short of foreign exchange. Prior to 1991, the Cuban economy was dependent on the Soviet Union for foreign aid, trade, and investment. More than 70 percent of Cuba's merchandise imports and at least 50 percent of its foreign aid were supplied by the USSR.*

*Cuban exports have not been sufficient to sustain imports for more than a decade. Cuba must export sugar or other products at premium prices in the short-run to be able to afford the imports of petroleum products, machinery, food, and other inputs it needs to maintain agricultural and industrial output. Without new agreements to replace those of the former Soviet Union (FSU), Cuban production and trade will likely contract by 5 to 10 percent per year through 1995. [Dick Brown]*

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The rapid disintegration of the former Soviet Union (FSU) in 1991 left Cuba without any visible means of sustaining the full productive capacity of its economy in the short run. The Cuban economy will not necessarily collapse as a result of cutbacks in FSU trade and aid, but total output will drop sharply and remain down until new foreign trade and investment agreements can be negotiated.

For most countries, the temporary loss of one or two trading partners is a concern, but not a major problem. With the sudden collapse of the FSU, Cuba simultaneously lost its primary source of subsidized agricultural and industrial inputs and its premium export market. This sudden turn of events also left Cuba without the financial capacity or support to obtain the full complement of imports it needs to maintain the volume of output and productive capacity achieved in the 1980's.

For Cuba, the adjustment period is likely to be longer and more painful than for other countries in similar situations. Even if Cuba had managed to maintain export production at or near the volumes achieved in the 1980's, the competitive prices it receives for products in world markets will not be sufficient to provide the needed foreign exchange to purchase a normal complement of imports.

Total output (GDP) and exports can be expected to decline in the short run. Cuba was unable to import all the fuel, machinery, and other inputs needed for 1991 and 1992, and production of some products, including sugar, has declined.

It is not clear whether the current government of Cuba can turn the economy around without significant foreign financial assistance. In 1988, for example, the balance of trade deficit alone was more than 2 billion pesos. In 1993, the trade deficit, based on Cuba's historical imports and declining output, could easily be equivalent to \$3 to \$5 billion or more if barter trade was monetized.

Several facts set the stage for Cuba's current predicament:

- Cuba imports four types of commodities essential to its long-run stability -- fuel, machinery, crude materials, and other inputs, including some foods, feeds, and fertilizers;
- There are still very few products to export other than sugar, citrus, seafood, and nickel.
- In the absence of substantial imports of fuels, chemicals, and other agricultural inputs, the country will not be able to regain its export capacity.
- Cuba has a chronic balance of payments deficit. Recovery depends on the ability to negotiate trade agreements, and find new markets, and sources of foreign credit and investments.

Cuba's foreign trade has been limited to a few primary partners for many years. In 1958, before the revolution, most trade was with the United States and other Western Hemisphere countries. Cuba then became dependent on Eastern Europe and the FSU after the revolution. Prior to the 1958, the United States supplied 70 percent of Cuba's imports and took 67 percent of its exports. In 1988, the USSR accounted for almost identical shares of imports and exports as the United States had thirty years earlier (table 9.1).

The trade embargo in effect by the United States since 1961 forced Cuba to import food, fuel, and machinery from centrally planned economies to help fill gaps in domestic output. Imports sustained Cuba's revolution and helped the country modernize while the population grew from about 6 to 10 million persons. With the collapse of the FSU, Cuba must once again seek new trading partners and negotiate new trade agreements.

Russia, for example, can no longer guarantee oil in exchange for sugar, because declining petroleum output has reduced supplies available for export. Russia, however, has been Cuba's largest export market and still needs sugar, but has only limited supplies of convertible currency.

**Table 9.1**  
Cuba's primary trading partners in 1958 and 1988

Trade by region	1958		1988	
	Value	Share	Value	Share
	Million pesos	Percent	Million pesos	Percent
Cuba's imports from:				
All countries	777.1	100	7579.8	100
Americas	645.6	83	360.4	5
U.S.	542.7	70	--	--
Eastern Europe	2.0	--	6432.5	85
USSR	--	--	5364.4	71
Rest of world	129.5	17	786.9	10
Cuba's exports to:				
All countries	735.5	100	5518.3	100
Americas	526.4	72	98.1	2
U.S.	490.3	67	--	--
Eastern Europe	15.3	2	4518.2	82
USSR	14.1	2	3683.1	67
Rest of world	191.8	26	902.0	16

Source: Anuario Estadístico de Cuba, 1989.

cies to pay for it. Cuba, however, must sell sugar to buy oil and other inputs to maintain its GDP at the volumes reported in the 1980's. Sugar has accounted for more than 75 percent of Cuba's export earnings for more than 30 years.

### Trade Deficit Widens

In 1989, Cuba's balance of trade deficit was the largest in history, approaching 3 billion pesos annually (table 9.2).<sup>1</sup>

Cuba's growing trade deficit in the 1980's made it difficult for the government to increase imports of needed goods and services. The deficit appears to have widened in the early 1990's.

Cuba's merchandise trade volume between 1958 and 1988 (1987-89 average) increased ten-fold in imports, and a seven-fold in exports. The trade deficit in 1958 was small and insignificant, grew rapidly for a few years in the 1960's, narrowed in the 1970's, then widened again in the 1980's. The recent deficit did not really become a significant problem until the early 1990's.

Although Cuba has attempted to diversify its export sectors since the late 1950's, exports continue to be concentrated among three or four categories. Thirty years later,

<sup>1</sup> During most of the 30 years prior to 1990 the "official Cuban exchange rate" was often on par with the U.S. dollar, or slightly above or below it. For 1988 (1987-89 average), it was essentially 1 to 1. However, only limited quantities of Cuban goods have been traded for U.S. dollars for more than 30 years, and most of the data presented in this paper are in quantity units, either number of units or metric tons.

**Table 9.2**  
Value of Cuban merchandise trade, 1958 and 1988<sup>1</sup>

SITC #	Commodity group <sup>2</sup>	Imports		Exports	
		1958	1988	1958	1988
----- Million pesos -----					
Totals		777	7,762	733	5,437
--- Percent of total ---					
0	Foods and livestock	20.5	10.1	81.0	81.5
1	Beverages and tobacco	1.2	0.1	6.9	2.0
2	Crude materials, ex. fuels	6.5	3.8	3.8	0.5
3	Mineral fuels	11.3	33.9	--	5.4
4	Fats and oils	0.7	1.0	--	0.0
5	Chemicals	6.1	6.0	0.8	0.7
6	Manufactured goods	13.2	10.6	0.2	0.8
7	Machinery and equipment	30.8	31.3	--	0.7
8	Miscellaneous articles	9.7	3.2	--	0.4
9	Other goods and services	--	--	7.3	--

1 Data for 1988 are 1987-89 averages, rounded.

2 United Nations, "Standard International Trade Classification" (SITC) schedule.

Source: Anuario Estadístico de Cuba, 1989

sugar and other foods, beverages and tobacco, and crude materials, except fuels, still accounted for more than 90 percent of all merchandise exports.

Similarly, imports are concentrated in four groups, despite Castro's longstanding desire to diversify the economy. Imports of foods, fuels, machinery, and crude materials increased from about 60 percent of the total in 1958 to 75 percent in 1988.

This continuing concentration of foreign trade has increased the vulnerability of the Cuban economy, which depends on good sugar harvests, favorable weather, and strong market prices for its sugar and other exports.

### Food and Livestock Products Imported

Although Cuba is a net exporter of food and agricultural products, it continues to import significant quantities of grains, feeds, and livestock products. Cuba's foreign food needs are primarily temperate zone products, which have become staples in the diet and cannot be easily produced in Cuba. Thus Cuba must either continue importing these products, increase production, or both, to maintain the nutritional content of the diet.

Can Cuba increase production of indigenous food crops sufficiently in the short run to compensate for its declining ability to finance traditional imports from other countries? Cuba has sufficient crop area to increase production of food crops but this may require a significant reduction in area devoted to export crops such as sugar.

However, Cuba's reliance on imports of selected foods and livestock products declined from about 20 percent of total



imports in 1958 to 10 percent in 1988. This suggests that Cuba has increased domestic food supplies, and fewer imports are needed.

Cuba depends on some agricultural imports more than others (table 9.3). In 1987-89, for example, Cuba imported 100 percent of its wheat and barley needs, 80 percent of the grain corn, 40-50 percent of its milled rice, 60 percent of its dry bean consumption, and significant quantities of dairy products, cooking oils, livestock products, and processed foods. These products could be supplied by the United States, if normal trade relations are reestablished with Cuba.

Since 1990, Cuba appears to have increased production of some vegetables and root crops, while production of dairy, poultry, and other livestock products has declined. Production of sugar is clearly lower, while rice, citrus and other intensively managed crops may or may not have declined -- reliable estimates are not available.

More rice, corn, and beans could be grown by diverting some of the suitable sugarcane areas, but there appears to be strong reluctance to do so as long as Cuba has solid export markets for sugar. Some cane fields might be converted to seasonal fruit and vegetable production.

The Cuban livestock sector was dependent on imported grains and feeds prior to 1990, and it's highly probable the sector is still dependent on imports. Press reports say the rationing of milk, eggs, and dairy products has intensified in recent months, indicating that livestock production has declined dramatically.

More fish and seafood may be viable alternatives to livestock products for daily diets, but Cuba may need significant investment in its commercial fisheries to expand the catch. Commercial aquaculture operations often take years to develop and are very dependent on commercially formu-

lated feeds and medication, which would increase Cuba's need for costly imports.

### Miscellaneous Product Imports

Cooking fats and oils (animal and vegetable) are important in the Cuban diet, but the import requirement is only about 150,000 metric tons (mt) annually.

Cuban imports of beverages and tobacco have not been a priority since the late 1950's and early 1960's. Cuba continues to be a quality exporter of rum and cigars and other tobacco products.

Crude material imports necessary to the economy are primarily partially manufactured items used as inputs in Cuba's agriculture and industry, including sulfur, rubber, wood pulp, cotton, and oilseeds. Crude materials accounted for less than 5 percent of merchandise imports in the 1980's.

### Chemical Imports Important to Agriculture

Chemicals accounted for only 6 percent of Cuba's merchandise imports in 1987-89. Nearly 50 percent of these were classified as agricultural chemicals such as fertilizers, pesticides, and herbicides. Minimum amounts of these are crucial to the maintenance of yields in the technologically advanced segments of Cuban agriculture, and more likely could be used if Cuba could afford them.

Cuba's sugar, rice, and tobacco crops are very dependent on timely applications of fertilizers, pesticides, and herbicides to sustain yields. Without regular applications, noticeable declines in yields would begin within a few months, something Cuba cannot afford because of its export dependency on sugar, tobacco, citrus, and a few other agricultural products. Although herbicide and pesticide application rates per hectare are much lower than for fertilizers, herbicides, and pesticides are more widely used than commercial fertilizers.

Cuba produces some of its own agricultural chemicals (official statistics are not available), but it still depends primarily on imports (table 9.4). Official Cuban trade statistics indicate that imports of these chemicals cost Cuba 400 to 500 million pesos annually during the 1987-89 period.

### Mineral Fuels and Lubricants Imports Essential

Cuba's ability to import adequate supplies of petroleum and related products has been a growing problem for many years. In 1958, fuel and petroleum imports accounted for less than 12 percent of total merchandise imports, but by the mid-1980's, the level was one-third.

Fuel imports in 1958 ranked fourth after machinery, foods, and manufactured goods. Thirty years later, they were number one. By 1988, imported petroleum products accounted for at least 80 to 90 percent of Cuba's annual energy consumption.

Table 9.3  
Selected Cuban food and feed imports, 1987-89<sup>1</sup>

Commodity	Quantity
	Metric tons
Wheat	1,250,000
Wheat flour	250,000
Rice	250,000
Barley	50,000
Maize	800,000
Dry beans	150,000
Dairy products	100,000
Meats	150,000
Animal feeds	400,000
Fats and oils	150,000

1 Data for 1988 are 1987-89 averages, rounded.

Source: Anuario Estadístico de Cuba, 1989.

**Table 9.4**  
Selected agricultural chemical imports, 1987-89<sup>1</sup>

Commodity	Quantity	Units
All Chemicals	470	Mil. pesos
Agricultural chemicals	210	Mil. pesos
Fertilizers:		
Nitrogen compounds	700,000	Metric tons
Phosphate "	350,000	Metric tons
Potassium "	400,000	Metric tons
Pesticides	10,000	Metric tons
Herbicides	20,000	Metric tons

1 Data for 1988 are 1987-89 averages, rounded.

Source: Anuario Estadístico de Cuba, 1989.

Cuba's domestic crude oil production has increased slowly and remains limited. Crude output, about 500,000 mt annually, has never accounted for more than 3 to 5 percent of Cuba's total energy needs. Limited proven oil reserves are not expected to provide more than 5 to 10 percent of energy needs this decade.

Alternative power sources, such as solar, biomass, and hydroelectric, are developing, but nuclear expansion has been painfully slow and frustrating. Furthermore, facilities designed by the Russians may never be completed because of technological changes and limitations.

Cuba's agricultural and industrial development over the past 30 years became increasingly dependent on imports of petroleum products to power vehicles and lubricate machines. The expansion and mechanization of Cuba's sugar industry, for example, could not have been achieved without imports of fuel, machinery, and other inputs.

By 1990, Cuba was importing about 13 million metric tons (mmt) of mineral fuels per year to supplement limited domestic supplies, essentially unchanged from 1985 although reexports of Soviet crude declined from 2 to 3 mmt to less than 1 mmt in that period. Cuba needs 12 to 13 mmt of petroleum imports annually, without any allowances for reexports.

The various fuels imported in the 1987-89 period are probably still representative of the volumes and types of products needed in the early 1990's. Some economies, however, can be achieved with improved conservation practices. Nevertheless, Cuban fuel oil requirements appear more critical than other petroleum derivatives, such as gasoline, needed to maintain Cuban agricultural and industrial capacity (table 9.5).

Cuban imports of gasoline dropped 60 percent between 1986 and 1988, the first solid indicator of growing USSR-Cuban trade problems. Fuel oil and diesel fuel imports in

**Table 9.5**  
Cuban mineral fuel and lubricant imports, 1987-89<sup>1</sup>

Commodity	Quantity
	Metric Tons
Coke and coal	250,000
Crude oil	8,000,000
Gasoline	300,000
Fuel oil	3,500,000
Diesel fuel	1,300,000
Lubricants	150,000

1 Data for 1988 are 1987-89 averages, rounded.

Source: Anuario Estadístico de Cuba, 1989.

1988 were off slightly from the mid-1980's and have been cut further.

Cuban officials indicate that total imports of petroleum products, including crude, were about 13 mmt in 1990, 10 mmt in 1991, and only 6 to 7 mmt in 1992. Foreign deliveries in 1993 are expected to be about the same as in 1992.

A steady decline in Cuba's sugar production since 1990 is indicative of the impact smaller fuel supplies are having on energy dependent industries. More ox carts on the streets of Havana and more frequently scheduled electrical blackouts all across Cuba are further signs that supplies of petroleum products may be tighter now than at any time since the late 1950's.

Early in 1993, Cuban officials admitted the sugar industry is affected by the lack of fuel. In 1990, sugar production exceeded 8.0 mmt, but by 1991, the first year that total petroleum imports were down significantly, output had dropped to 7.2 mmt. In 1992, production was approximately 7.0 mmt. During the early weeks of the 1993 harvest, most international sugar traders projected a sugar crop of 6.0 to 6.5 mmt. (However, late in May, after unseasonal and heavy rains during the harvest, Cuban officials announced the island's sugar production might be only 4.2 mmt.)

#### ***Machinery and Transportation Equipment Imports Necessary for Production***

Cuba imports a wide variety of machines, motorized vehicles, spare parts, and electrical devices (table 9.6), accounting for more than 30 percent of all imports (value basis) in 1985-89, about the same as in 1958. Cuban dependency on these products is clear, but often imports can be postponed for a year or two, without serious reductions in industrial production schedules. The quantities listed in table 9.6 are needed to sustain the productive capacity of both sugar and nonsugar sectors in the 1990's.



**Table 9.6**  
Cuba's imports of machinery and motor vehicles, 1987-89<sup>1</sup>

Item	Quantity		Value
	Units	Million pesos	
All machinery	--	2500	
Electrical equipment	--	350	
Transportation items	--	600	
Locomotives	10 to 20	5	
Wagons	200 to 400	10	
Dump Trucks	1000 to 1100	38	
Autos	8000 to 9000	25	
Automotive parts	--	20	
Farm and other machinery	--	1550	
Ag implements	4500	25	
Tractors, w/tracks	600	12	
Tractors, w/tires	7500	58	
Rice combines	50	2	
Bulldozers	200	10	
Cultivating machines	1400	30	
Machine tools	1200	30	
Industrial parts	--	20	
Diesel motors	6000	10	

1 Data are 1987-89 averages, rounded.

Source: Anuario Estadístico de Cuba, 1989.

#### ***Manufactured Goods and Miscellaneous Articles Less Critical***

Manufactured goods, other than machinery, equipment, and crude materials, accounted for less than 11 percent of all merchandise imported by Cuba during the 1985-89 period, and slightly less than in 1958 (table 9.7).

Imported manufactured goods include plywood, paper, textiles, and other intermediate items for further fabrication. Consumer durable goods, such as furniture and household appliances, historically have been included in this general category. But many of the items appear to be less critical to the economy in the short run than machinery imports. Nevertheless, they are significant and critical in the 1990's.

**Table 9.7**  
Cuban imports of selected manufactured goods, 1987-89<sup>1</sup>

Item	Quantity		Value
	Units	Million Pesos	
Tires, ex bicycle	600,000 Units	50	
Steel plates	700,000 Metric tons	220	
Cast iron	200,000 Metric tons	20	
Iron & steel tubes	75,000 Metric tons	40	
Non-ferrous metals	--	70	
Paper products	--	80	
Cloth and fabric	--	130	
Plywood	--	80	

1 Data are 1987-89 averages, rounded.

Source: Anuario Estadístico de Cuba, 1989.

#### **Conclusion**

The 1990's began as a very "special period" in Cuban history as Castro calls it. After years of some growth and development, the economy is experiencing production shortfalls and other difficulties due primarily to a shortage of foreign exchange to buy oil, machinery, and other products.

In the agricultural sector, sugar production is down and rice yields may also be declining. Other industries are also finding it difficult to cope with the energy crunch that is obviously occurring in Cuba. Rationing has intensified. Cuba, however has great resiliency and may well be able to survive yet another "special period" in its colorful history.

The loss of economic aid and subsidized markets for Cuban products has generated a severe crunch which is the most critical problem facing Cuba today. Cuba needs imports of 12 to 13 mmt of petroleum products annually to fulfill its current energy requirements, but can't afford to unless sugar exports receive premium prices.

## Latin American Food Demand: Potential for Growth?

*Latin American food demand may expand with population growth and increased household income. While Latin American diets are not the poorest in the world, there is still a marked gap between their and diets of more developed economies. [Miriam Stuart]*

In recent years, U.S. policymakers have initiated steps to formalize and strengthen trade ties with other Western Hemisphere nations. Implementation of the USCFTA in 1989 was one step in this direction, and the recently negotiated NAFTA and the ongoing Enterprise for the Americas Initiative (EAI) have added impetus to the movement.

As trade relationships in the Western Hemisphere strengthen, Latin American countries provide potential new export opportunities for U.S. agriculture. The size and market potential of the region's food demand depend on population growth, per capita income, shares of income spent on food, current food intake levels, and dietary quality.

### Population Growth Strong in Latin America

Latin America is home to about 8 percent of the world's people, with a larger population than the EC, the FSU, or Japan (table 10.1). If size were the only important variable, the market of 450 million may offer more modest trade opportunities in comparison to the Asian market of 3 billion.

However, the rapid population growth forecast for Latin America could fuel an increase in food demand in the next decade. For example, Central American and Mexican population growth is expected to be about 2 percent per year over the 1990 to 2005 period, significantly faster than the world rate of 1.6 percent. South American countries, other than Brazil and Argentina, are also expected to register population growth rates that exceed the world average. Brazil's population growth is forecast to be about equal to the world rate. In contrast to Latin America, both the U.S. and Canadian populations are expected to continue growing at a rate well below the world average. Thus, Latin American countries are expected to make up an ever-increasing share of the Western Hemisphere population through the year 2005.

In absolute terms, the largest population increases are expected in South America and Mexico. In total, Latin America and the Caribbean Islands are expected to be home to an additional 130 million people by the year 2005, while the combined U.S. and Canadian population is expected to grow by a more modest 30 million.

**Table 10.1**  
For every 100 people living on the earth in 1990.....

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14 are North, Central, or South American or Caribbean
And of these 14:
5 are from the U.S.
< 1 is Canadian
2 are Mexican
1 is from Central America or the Caribbean
3 are Brazilian
< 1 is Argentine
2 are from other South American countries
57 are from Asian or Micronesian countries
And of these 57:
22 are Chinese
16 are Indian
2 are Japanese
10 are European
And of these 10:
6 are from the European Community
14 are African or Middle Eastern
5 are from the former USSR

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Source: US Census Bureau, US Department of Commerce

### Income Major Determinant of Food Demand

Income is the most important factor driving household demand for food. "Engel's Law" holds that at low levels of income, a large portion of the household budget will be devoted to food purchases. However, with increases in income and as food needs are satiated, the proportion of the budget spent on food will decline as more and more incremental income is devoted to less essential goods and services. Thus, in aggregate at a national level, food demand increases most rapidly in low and middle income countries as national per capita income grows, as long as a large number, and especially the poorer households, experience improvements in their standard of living. Income growth restricted to the already well-off in a society, the group most likely to be near the top of the "Engel curve", will not produce as large an increase in food demand.

U.S. and Canadian per capita incomes were above \$20,000 (U.S.) in 1990, while average Latin American income was \$2,180. The world average was \$4,200. However, in-



comes in Latin America are comparable or better than those in other developing countries (table 10.2).

A comparison of per capita incomes alone cannot completely capture disparities in standards of living between nations because of differences in relative prices of consumer goods as well as differences in income distribution. The national food budget shares reveal marked differences in the share of private (nongovernment) consumption expenditures spent on food between LA, and the U.S. and Canada (table 10.2). While the U.S. and Canada devoted 13 and 11 percent, respectively, of all private spending on food, Latin American countries averaged one-third.

Since average Latin American incomes are lower and food budget shares are higher, increases in per capita incomes would likely result in larger incremental increases in food expenditures than would be expected in the United States, Canada, or other developed countries. This assumes that national income growth includes the poorer households.

### **Food Intake and Dietary Quality Indicators of Potential Demand**

Several indicators of dietary adequacy and quality indicate the magnitude of potential increases in food demand that would accompany economic growth in Latin America (table 10.2). Data from the United Nations Food and Agriculture Organization (FAO) "Food Balance Sheets" are used to calculate dietary indicators.<sup>1</sup>

#### ***Starchy Staples Important in Latin American Diets***

Empirical analysis has shown that household income growth not only results in increases in food budgets, but is also often accompanied by changes in the types of foods selected by consumers. Consumers' diets tend to shift from heavy reliance on "starchy staples" (i.e., cereals, potatoes, and other starchy roots and tubers), foods generally considered to be inferior products with respect to income, towards those containing more animal products, fats, oils, sugar, finer grains, as well as more highly processed foods.

Income elasticity estimates for various types of foods can be used to quantify this shift in consumers' diets accompa-

nied by income growth.<sup>2</sup> Latin American income elasticities are 0.5 for meat, 0.76 for soybean oil, and 0.4 for sugar. (So, a 10-percent increase in income would result in a 5-percent increase in meat consumption, etc.) Wheat, a finer grain, has an income elasticity of 0.4, which is lower than those for meat and soybean oil. The calculated income elasticity for corn is slightly negative, implying that consumption of this grain, a dietary staple in many Latin American countries, actually decreases with income growth. The average income elasticity for meat in the United States and Canada is 0.22, less than half that of Latin America, which is to be expected with the higher per capita incomes in these two North American nations. Soybean oil income elasticity is 0.53, also smaller than found in Latin America, and estimates for both wheat and corn are negative.

The reliance on starchy staples makes both economic and nutritional sense when food resources are scarce because they are generally inexpensive foods and use fewer agricultural resources to produce than many animal products and vegetable oils. But many consumers would prefer diets that include these tastier, more energy dense, and costlier foods. A comparison of the share of calories derived from starchy staples gives a glimpse at the differences in the composition of diets of Western Hemisphere consumers.

The diets of Latin American consumers are more dependent on starchy staples than those in the United States and Canada (table 10.2). One-fourth of U.S. and Canadian calories are derived from cereals, potatoes, and other starchy roots and tubers. Latin American diets derive one-third to two-thirds of their calories from these staples. All but one of the countries classified as food deficit by the FAO in 1991, have diets consisting of over one-half starchy staples. (However, diets in most Latin American countries include a smaller share of starchy staples than the world average of 56 percent.) Income growth would very likely result in a decrease in the share of cereals, roots, and tubers in Latin America diets and an increase in the share of meat, vegetable oils, and other more expensive foods.

#### ***Caloric Requirements: Are They Being Met?***

The first nutritional indicator given in table 10.2 is the percent of calorie requirements being met on a per capita ba-

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<sup>1</sup> While FAO data are invaluable in comparing diets across countries, the data limitations must be considered. First, the per capita intake data used to calculate the indicators are actually food disappearance data divided by population (table 11.2). They are based on FAO estimates of the amount of food that "disappeared" or was obtained by consumers from the total food supply, and include estimates for losses and waste incurred on farms, in transport, in storage, and processing, as well as grain fed to animals and used for seed, but do not account for loss or waste in the home. So, while the term "intake data" is used to describe per capita disappearance, it can not be known for certain that the food was actually ingested by consumers. In addition, the FAO intake data are national averages and therefore do not account for unequal distribution of food within a country, within households, or seasonal variations in diets.

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<sup>2</sup> Income elasticities can be interpreted as the percent change in the quantity consumed of a particular good with a one percent increase in income, holding prices and other factors constant. In many cases, an increase in income will result in the increased consumption of a good (i.e., "normal goods"), and the size of this increase can generally be expected to be greater in poorer households. However, there are certain goods in which consumption actually decreases with income growth (i.e., "inferior goods") because consumers prefer other products if they can afford it.

Table 10.2

## Western Hemisphere diets, income, and food expenditures: How do they stack up?

	GNP per capita 1990 <sup>1</sup>	Food Expenditures share of private consumption <sup>2</sup> 1980 or 1985 data	Per capita calorie cons. as share of estimated <sup>3</sup> requirement	Share of calories from cereals and starchy roots	Protein intake and source ----- Plants    Animal    total    AC <sup>4</sup>			
	U.S. dollars		-----Percent-----		Grams per capita/day			
NORTH AMERICA								
Canada	\$20,470	11	123	26	39	62	101	82
U.S.	\$21,790	13	137	24	38	71	109	90
Mexico	\$2,490	35	132	48	49	31	80	55
CARIBBEAN								
Cuba		n/a	136	38	38	36	73	55
Dominican Republic*	\$830	46	103	36	31	18	50	34
Haiti*	\$370	n/a	90	50	40	9	49	29
CENTRAL AMERICA								
Belize	\$1,990	n/a	112	36	34	36	70	53
Costa Rica	\$1,900	33	121	37	35	29	64	46
El Salvador*	\$1,110	33	102	55	42	14	56	35
Guatemala*	\$900	36	103	61	47	8	55	31
Honduras*	\$590	39	96	52	38	14	52	33
Nicaragua*	\$810 <sup>5</sup>	n/a	101	53	41	14	55	34
Panama	\$1,830	38	101	41	29	30	59	44
SOUTH AMERICA								
Argentina	\$2,370	35	131	36	36	64	100	82
Bolivia*	\$630	33	85	53	34	19	52	36
Brazil	\$2,680	35	114	41	36	25	61	43
Chile	\$1,940	29	101	51	40	27	67	47
Colombia	\$1,260	29	105	39	30	25	55	40
Ecuador*	\$980	30	105	37	28	21	49	35
Paraguay	\$1,110	30	116	46	40	29	69	49
Peru*	\$1,160	35	88	51	33	22	55	39
Uruguay	\$2,560	31	99	41	32	50	82	66
Venezuela	\$2,560	23	99	36	32	30	61	46
OTHER COUNTRIES/REGIONS								
World	\$4,200	n/a	n/a	56	46	25	71	48
Africa	\$340, \$1,790 <sup>6</sup>	n/a	n/a	65	45	13	58	35
Former USSR		n/a	132	42	50	56	107	81
European low & middle income countries	\$2,400	n/a	n/a	32	43	58	102	80
Poland	\$1,690	29	130	39	46	56	101	79
France	\$19,490	16	141	28	40	73	112	92
China	\$370	61	111	75	51	13	64	38
Japan	\$25,430	16	124	43	42	52	94	73
India	\$350	52	101	66	47	8	55	32

\* Denotes countries classified as a "food deficit" by UN, FAO in 1991

1 Calculated by World Bank "Atlas Method". See World Development Report, p. 287 for details.

2 Refers to share of private (non-government) household expenditures used to purchase food. This figure excludes expenditures on beverages and tobacco, except in the figures for China and Mexico. See World Development Report, p. 291 for details.

3 Country-specific caloric requirements obtained from FAO Fourth World Food Survey, 1977. These FAO requirements include a 10 percent allowance above estimates which are considered the minimum necessary to cover only food gathering activities to sustain life.

4 AC = "adjusted for comparison", and equals the mean of animal and total protein - calculated for comparative purposes only and does not necessarily reflect actual protein intake levels. See highlighted box for a discussion of protein quality.

5 GNP figure for 1987

6 First GNP figure is for Sub-Saharan Africa, second is an average for North Africa & Middle East.

Sources: "FAO Food Balance Sheets" for food intake data (all intake numbers are 1986-90 averages)

"World Development Report, 1992", published by the World Bank, for economic data



sis.<sup>3</sup> A comparison of average caloric availability to per capita energy intake recommendations indicates that the Latin America food-deficit countries fall below average or have only small per capita surpluses. Even though they are not classified as food deficit, Chile, Colombia, Panama, Uruguay, and Venezuela are also below or only slightly above per capita caloric intake recommendations. The caloric intake levels of these countries are similar to those in other developing countries such as India and China.

In contrast, the United States, Canada, Argentina, Costa Rica, Cuba, and Mexico have at least a 20-percent caloric surplus per capita. These Western Hemisphere caloric ratios are comparable to those in industrialized countries such as the FSU, France, Poland, and Japan.

Many Latin American countries may have adequate food supplies to meet average caloric requirements, although hunger and malnutrition do exist in the Hemisphere. Consumers in Latin America would likely increase per capita food intake, perhaps to levels similar to those in the United States, Canada, France, and Japan, with sufficient increases in household income.

#### ***Protein Intake: Important, But Hard To Measure***

Like energy intake recommendations, establishing guidelines to measure the adequacy of protein consumption is complex for at least three reasons. First, not all food sources of protein are of equal quality. Plant products lack some of the essential amino acids that make all of their protein content usable by humans. In contrast, animal sources are a more complete source of protein. A second factor is the interaction between energy and protein consumption. Unless caloric intake is sufficient, the human body will break down protein consumed and use it to meet energy requirements thus depriving the body of this important nutrient even when available in the diet. Third is the interaction between various protein-containing foods. For example, grain alone is an incomplete protein source, but combined with legumes, nuts, seeds, or animal products, makes more of the protein in grain usable to humans. Thus it is possible to get sufficient protein without consuming any animal products.

In sum, interpreting protein intake data is complex but for the purposes of this discussion, several simple indicators given on table 10.2 allow for basic comparisons between countries. Plant, animal, and total protein intake per capita are included, along with the mean of the animal and total

protein intake numbers or "adjusted for comparison" (AC) protein intake. The AC would be the protein intake level if, on average, the plant sources scored 50 on the FAO/WHO scale (see text box for an example of this calculation).

#### **Protein Quality Ranking and "Safe Levels of Intake"**

To measure the relative quality of protein in different kinds of foods, a variety of scales have been developed. For example, the FAO and World Health Organization (WHO) developed a chemical scoring system to rank food protein quality in relationship to hen's eggs, a very high quality source. To illustrate, in comparison to the egg's score of 100 on the FAO/WHO scale, wheat, potatoes, some pulses, some nuts and seeds, cassava, and maize received scores around 50 to 55, while rice, barley and sweet potatoes received scores around 65. The soybean score of 74 is very high for a plant protein sources.

As expected, animal products received much higher rankings on the FAO/WHO score; meats and fish received scores of 99 or 100. Cow's milk scored 95, human milk 100.

The FAO "safe level of intake" for *high-quality* protein (scoring 95 to 100) ranges from 14 to 38 grams per day for children and adolescents, and from 29 to 37 grams for adults. However, pregnant and lactating women need up to twice the amount of protein of other women.

Because of the lower utilization rate of plant protein sources, meeting the "safe level of protein intake" requires consumption of greater quantities of plant proteins as compared to meat or eggs. For example, according to the FAO/WHO score of 49 for maize, about two kilograms of maize would have to be eaten to obtain the same amount of protein as one kilogram of beef, with a score of 100.

In sum, given the differences in protein quality, it is important to consider the total amount consumed as well as the food source of this critical nutrient when assessing dietary quality.

A final note of caution when interpreting protein intake data: FAO protein "safe levels" should not be interpreted as exact nutritional requirements. Instead, these are guidelines which have been set high enough so that almost all people will meet their physiological needs by consuming these recommended quantities of protein. Individual intakes below these guidelines do not necessarily indicate a protein deficiency.

<sup>3</sup> These country-specific caloric guidelines are calculated using country-specific energy intake recommendations published in the 1977 FAO Fourth World Food Survey. They are based on the age and sex distribution of each nation's population, the peoples' average body size, the country climate, and include a 10 percent buffer for "normal" activity beyond minimum life-sustaining levels to allow for energy to undertake physical work, play, etc. Calculating energy requirements is complex, and the FAO has drawn criticism on their dietary recommendations. Thus, while the guidelines can be used for crude comparisons of diets between nations, they should not be used as the sole indicator of hunger or malnutrition in any particular country.

As in the case with caloric intake, the countries classified as food deficit ranked the lowest on protein intake scores. Bolivia, Dominican Republic, El Salvador, Guatemala, Haiti, Honduras, Peru, Ecuador, and Nicaragua all have animal product per capita protein intake of less than 22 grams per day, and total protein intake of less than 56 grams. The AC per capita protein intake for these countries is within the adult "safe level of intake" guidelines of 29 to 37 grams, (but below the world average). However, these countries were below or only marginally above meeting their per capita energy requirements, which suggests that some portions of the population may not be obtaining the recommended calories. Because of the interaction between calorie and protein consumption, these people could be at risk of more pronounced protein deficiencies than indicated by examining protein intake data alone. Of course, both protein and caloric deficiencies are a result of inadequate income.

In contrast to the food-deficit countries, both the United States and Canada have animal product protein intake well above FAO guidelines. Argentina's per capita intake levels are comparable to those in the United States and Canada, and Uruguay is also well above the FAO guidelines. Belize and Cuba levels are near the top of the adult "safe level of intake" range (of 37 grams). The remaining Latin American countries have animal product protein consumption levels near the bottom of the safe level range (of 27 grams), but diets are supplemented with sufficient plant protein sources to put the AC protein intake levels above 37 grams.

While a number Latin America countries are likely to have adjusted protein intake levels within the adult safe level range, most have intake of animal product protein of less than half that of the United States. The comparatively low levels of animal product protein in Latin American diets indicates a latent demand for these foods in most countries, not just the ones classified as food deficit. Thus, as in the case with total food consumption, an increase in Latin America incomes could increase the demand for meat, eggs, and dairy products, and thus offer potential opportunities for increased U.S. exports of these products.

## Summary

The potential exists for increases in food consumption and improvements in diets with per capita income growth. While Latin American diets are not the poorest in the world, there is still a marked gap between their and diets of more developed economies.

However, to achieve an increase in Latin American food demand, income growth would have to be distributed to large, and especially the poorer, portions of the population that are more likely to have unmet food needs. Income growth concentrated in the smaller, more wealthy sectors

of the population would be more likely to lead to an expansion in demand for consumer goods other than food.

The relative size and expected growth of the Latin American population also make it a potentially lucrative market. In 1990, 60 percent of all people living in the Western Hemisphere were citizens of Mexico, Central or South America, and the Caribbean. By 2005, Latin Americans are expected to make up two-thirds of the Hemisphere's population. Thus, most of the Western Hemisphere's consumers live in Latin America and they will make up an ever-increasing share of the population.

Bringing the average per capita consumption of the 21 Latin America countries included in this analysis up to the U.S. 1990 level would require an additional 2 million metric tons (mmt) of grain per year, vegetable oil supplies would have to increase by 5 mmt, and meat supplies by 31 mmt. In addition, these increases would have to grow at the same rate as Latin American population to maintain per capita consumption levels.

## References

- Davis, Carlton G. (1982). "Linkages between Socioeconomic Characteristics, Food Expenditure Patterns and Nutrition Status of Low Income Households: A Critical Review." *American Journal of Agricultural Economics*. December.
- Food and Agriculture Organization of the United Nations (1977). "Fourth World Food Survey." UN, FAO, Rome.
- Leser, C.E.V. (1963). "Forms of Engel Functions." *Econometrica*. Vol. 31 (4).
- Organization of the United Nations (1986-90). "Food Balance Sheets." Electronic data base of The Food and Agriculture. UN, FAO, Rome.
- Seeley, Ralph, Steve Magiera, Vernon O. Roningen, and John Sullivan (1989). "Projections Parameters: Income Elasticities and Growth Rates." An unpublished report by the Economic Research Service, USDA. May.
- U.S. Department of Commerce (1992). "International Data Base." Electronic data base, Bureau of the Census.
- World Bank (1992). *World Development Report, 1992*. Oxford University Press, New York, NY.
- World Health Organization (1985). *Energy and Protein Requirements: Technical Report Series 724*. Report of a Joint FAO/WHO/UNU Expert Consultation. Geneva.



## Environment and Trade Issues for Western Hemisphere Agriculture

*The interpretation of the provisions of the General Agreement on Tariffs and Trade (GATT) as interpreted in the United States-Mexico tuna harvesting dispute have implications for agricultural trade. [Kenneth W. Forsythe Jr. and Howard McDowell]*

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International trade in agricultural and forest products among Western Hemisphere countries is directly and indirectly affected by national and international environmental regulations designed to ameliorate environmental problems. The difficulty in achieving both domestic environmental objectives and multilateral trade liberalization has been demonstrated by the interpretation of the provisions of the General Agreement on Tariffs and Trade (GATT) in the recent dispute between the United States and Mexico over tuna harvesting and the requirements of the U.S. Marine Mammal Protection Act (MMPA).

The GATT ruling in the dispute over tuna harvesting operations that inadvertently catch dolphins could have implications for the proposed restrictions on methyl bromide, an important pesticide for fruit and vegetable production, and quarantine fumigation, which has an ozone depleting chemical. Two broader environmental problems are discussed, global warming and loss of biodiversity, because they also have an impact on the Western Hemisphere's agricultural and forest resource base.

### The GATT and the Environment Could Be in Conflict

The U.S.-Mexico tuna-dolphin case and the current GATT review of international environmental agreements indicate that unilateral trade sanctions historically used to enforce domestic and international environmental laws or policies could be in conflict with the GATT. In accordance with the MMPA, the United States placed an embargo on Eastern Tropical Pacific yellowfin tuna from several countries that allowed the use of purse-seine nets that secondarily trap and drown dolphins.

On February 6, 1991, Mexico called for a GATT dispute settlement panel, which gave a preliminary ruling in Mexico's favor on August 16, 1991. The United States argued that the embargo was permitted under Articles III and XX of the GATT. Article III requires "national treatment," meaning that imported products can be accorded no less favorable treatment than domestic products. Under Article XX, the embargo was justified as a permissible exception to the GATT because it protected animal health and exhaustible natural resources. The GATT panel ruled that national treatment required a comparison between products of exporting and importing countries, and not a comparison between production regulations of the exporting and

importing countries that had no effect on the product. The GATT panel ruled that Article XX does not permit exceptions to GATT trading rules for the purpose of attempting to enforce domestic laws outside the importer's jurisdiction.

The U.S. administration agreed to seek changes in the MMPA that would lift the embargo immediately if countries agreed to stop netting dolphins for 5 years beginning in March 1994. Mexico, in turn, agreed to defer the GATT ruling for several months, and to reform fishing practices. The 1991 dispute settlement panel report was to be voted on before a regular session of the GATT Council, the final decision making body, on October 8, 1991, but was postponed at the request of both the United States and Mexico.

### GATT Article XX

The GATT does not expressly authorize or regulate measures for environmental protection, Article XX of the GATT provides general exceptions to GATT rules. Article XX(b) allows the adoption of regulations "necessary to protect human, animal or plant life or health," however, "necessity" is open to interpretation. Article XX(g) permits members to adopt or enforce measures "relating to the conservation of exhaustible natural resources if such measures are made effective in conjunction with restrictions on domestic production or consumption" provided that the measures are primarily aimed at such conservation.

Two conditions must be met for an exception to be justified under Article XX: (1) the measure may "not be applied in a manner which would constitute a means of arbitrary or unjustifiable discrimination between countries where the same conditions prevail," and (2) the measure may not be "a disguised restriction on international trade." The latter condition has historically been met by publicly announcing a restriction as a trade measure. The former condition, even when national treatment requirements are met, may not be sufficient to justify an exception to GATT trading rules for environmental objectives.

The preliminary decision in the U.S.-Mexico tuna-dolphin dispute raises questions about a country's ability to protect the global environment with restrictions on domestic processing and production methods and trade sanctions on imports produced with domestically banned methods. The GATT panel reasoned that the U.S. argument could lead to protectionist abuses, and that parties would have to agree on limits to prevent abuse before any environmental trade restrictions could be permitted. These issues are directly related to the agricultural and economic development policies and the concerns over environmental quality throughout the Hemisphere.

### Ozone Depletion, Methyl Bromide, and Fruit and Vegetable Trade

The ozone layer filters harmful ultraviolet (UV) radiation from light received at the earth's surface. In 1985, the thinning of the ozone layer above Antarctica was verified and attributed to man-made chemical pollution of the atmosphere.

#### GATT Working Party on Environmental Measures and International Trade

On October 8, 1991, the GATT Council accepted the first ever convening of the GATT Working Party on Environmental Measures and International Trade with wide support among delegations. The framework for the Working Party, established in 1971, was designed to "examine, upon request, any specific matters relevant to the trade policy aspects of measures to control pollution and protect the human environment," to help ensure that national environmental efforts did not introduce new trade barriers or prevent the reduction of existing barriers, and is limited to specific matters relevant to the application of the provisions of the GATT (*GATT Focus*, Oct. 1991, p.3).

The provisional agenda of the Working Party is:

- To review trade provisions contained in existing multilateral environmental agreements for consistency with the GATT;
- To assess the multilateral transparency of national environmental regulations likely to have trade effects; and
- To assess the trade effects of new packaging and labeling requirements aimed at protecting the environment.

Three out of over 140 international agreements and instruments pertaining to the environment have been specifically mentioned in the present Working Party agenda. These three agreements are: (1) The Montreal Protocol on Substances that Deplete the Ozone Layer; (2) The Basel Convention on the Control of Hazardous Wastes; and (3) The Convention on International Trade in Endangered Species (CITES).

The potential hazards of ozone depletion in the upper atmosphere led to the Montreal Protocol on Substances that Deplete the Ozone Layer. Most prevalent in the initial group of chemicals to be controlled are chlorine compounds, including chlorofluorocarbons (CFCs) widely used as aerosol propellants and refrigerants, and halons (brominated) used as fire extinguishing agents. Methyl bromide (MBr) has been emitted in quantities that deplete the ozone layer and accelerate chlorine's rate of ozone depletion.

Depletion of the ozone has reached 50 percent over the Antarctic, and 5 to 10 percent in the mid to high latitudes. Thus far, the tropics appear to be unaffected. Increased UV radiation has adverse effects on human immune systems, and increases the risks of skin cancer and cataract incidence. Furthermore, humans could be affected indirectly as increased UV radiation levels interfere with the viability of ecosystems generally, and aquatic micro-organisms specifically. Among other things, this could reduce the availability of basic organisms lying at the bottom of the food chain of the oceans, which provide 30 percent of the world's protein for human consumption. The problem is long term, as indicated by the conclusions of The Scientific Assessment of Ozone Depletion: 1991. If the control measures of the Montreal Protocol were to be implemented by all nations, ozone depletion is expected to increase, reaching a peak around the year 2000. Given these controls of ozone depleting chemicals, including methyl bromide, it will require until the middle of the next century before ozone levels reach those recorded in the early 1980's.

Methyl bromide, a widely used broad spectrum pesticide, is targeted for regulation by the Montreal Protocol and the United States Environmental Protection Agency (EPA). About 80 percent of its use is accounted for as a soil fumigant used in horticultural crop production, about 15 percent as quarantine and pre-shipment treatment for produce, the remainder as a structural fumigant.

At the fourth meeting of the Parties to the Montreal Protocol in Copenhagen, November 23-25, 1992, the following actions were taken (UNEP, 1992):

- The Protocol was *amended* to add methyl bromide as a controlled substance, and to freeze methyl bromide production at 1991 levels by 1995, with two major qualifications. First, quarantine and commodity pre-shipment treatments would be exempted. Second, this provision will not apply to countries operating under Article 5 until 1995, when a decision regarding appropriate control levels will be made. The agreed methyl bromide controls will enter into force by January 1, 1994, provided that twenty Parties have ratified it, or 90 days after the twentieth ratification if received at a later time.
- The Protocol Parties *decided* to undertake a full assessment of methyl bromide. This assessment will be conducted by the UNEP Scientific Assessment Panel and the Technology and Economic Assessment Panel and presented in 1994, to facilitate a 1995 review by the Parties, of the general control scheme for MBr.



- The Protocol Parties *resolved* to reduce MBr emissions, recover, recycle, and reclaim; and to decide reduction targets and a phaseout date.

The United States Environmental Protection Agency, which is responsible for implementation of the Protocol and related Clean Air Act requirements, has proposed that:

- U.S. methyl bromide production and importation be frozen in 1994 at 1991 levels; and
- Production and imports of methyl bromide will be phased out by 2000.

The Protocol Parties will review controls in for MBr in 1995 and could agree to ban production of the compound by the year 2000. In the interim, however, the Clean Air Act states that EPA must phaseout the use of any substance with an ozone depletion potential of 0.2 or higher. In a case of conflict between the Protocol and the Clean Air Act, the United States will follow the more stringent of the regulations. Thus, the United States could have a ban on methyl bromide before some other Parties to the Protocol. Further, as the law is not clear, EPA is soliciting comments as to whether an exemption can be given for essential uses. Therefore, the United States and the Protocol may not be consistent on the exemption of quarantine and preshipment treatments from the ban. Whether the chemi-

### Montreal Protocol on Substances That Deplete the Ozone Layer

The Montreal Protocol, adopted in 1987 and effective since January 1, 1989, is designed to control production and consumption of ozone depleting substances. Parties to the Protocol agreed to (a) ban the importation of certain ozone-depleting substances from non-Parties as of January 1, 1991, (b) ban the export of such substances to non-Parties as of January 1, 1993, and (c) disallow the transfer of the technology to create these substances non-Parties. The agreement requires periodic assessments of scientific, environmental, technical, and economic information to allow for updating the list of ozone-depleting substances and the adjustment of related control schedules.

Included in the agreement are the Interim Multilateral Fund and arrangements for the transfer of technology under favorable conditions designed to assist qualifying developing nations in shifting to less harmful technology. The amount pledged by developed countries reached \$240 million for 1991-92. The developing nations are referred to as "Article 5 nations" after the Protocol Article sanctioning their designation and preferential treatment. Nations qualify by meeting a maximum per capita usage of controlled substances and are generally entitled to delay compliance with control measures by 10 years.

cal could be used as an off-shore fumigant, and whether the United States could ban imports treated or produced with methyl bromide may require a GATT dispute for resolution.

### Methyl Bromide and U.S.-Latin American Fruit and Vegetable Trade

Methyl bromide fumigation is the principal method of quarantine treatment for imported plants and plant products considered potential conveyors of exotic pests. For some fruits and vegetables, such as grapes, nectarines, peaches, okra, and plums, MBr fumigation is the only available import quarantine treatment approved by USDA's Animal and Plant Health Inspection Service (APHIS). These commodities, imported primarily from Chile and Mexico, account for 94 percent of U.S. fruit and vegetable imports for which there is no approved alternative to MBr fumigation (figures 11.1 and 11.2). For others, such as citrus fruits imported from Mexico, cold treatment or pest-free zones are approved measures but MBr may be used in combination with cold treatment to reduce the duration of fumigation.

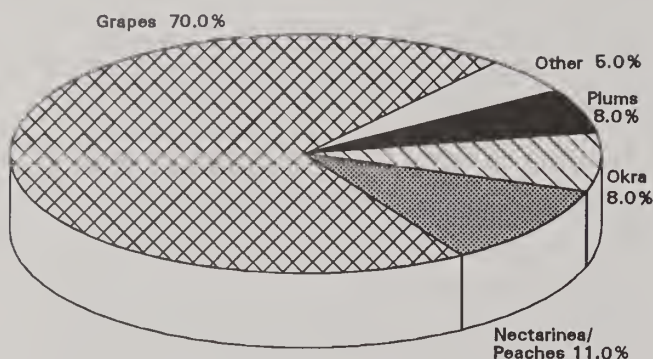
Methyl bromide is particularly important for U.S. imports of fresh fruit in the off season. Grapes, nectarines, peaches, and plums are imported in winter months when U.S. production is minimal. Previous research by APHIS indicated that the net economic losses in the U.S. fruit and vegetable market from potential cancellation of MBr as a quarantine treatment and consequent import bans on nine selected commodities could approach \$1 billion over 5 years.<sup>1</sup>

More than 350 million kilograms of imported produce (95 percent of it fruit) were fumigated at U.S. ports during FY 1991.<sup>2</sup> That year, an approximately equal quantity of produce was precleared before shipment to the United States. Preclearance of agricultural products requires the inspection and/or treatment of commodities under the supervision of International Services (IS) and Plant Protection and Quarantine (PPQ) officers in foreign countries in accordance with APHIS approved phytosanitary requirements (APHIS). The preclearance process is aimed at ensuring that products intended for export to the United States are of acceptable phytosanitary status. Most precleared produce is inspected and, if no pests are found, approved without treatment. However, preclearance of some commodities entails mandatory treatment at the point of origin, such as fumigation of grapes from Chile (nearly 69 million kg at the point of origin compared to 244 million at U.S. ports in FY 1991) and hot water immersion of mangoes from various Latin American countries (over 92 million kg at the point of origin). The total quantity of melon and fresh and frozen fruits imported by the United States dur-

<sup>1</sup> Calculated as the present value (in 1987 dollars) of annual changes in consumer and producer surplus over five years.

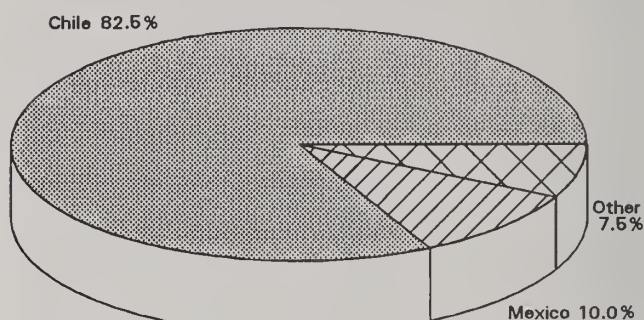
<sup>2</sup> This total does not include produce fumigated during preclearance.

Figure 11.1  
**U.S. Fruit and Vegetable Imports  
 Requiring Methylbromide Fumigation**



Total U.S. fruit and vegetable imports for FY1985 fumigation averaged 297.5 metric tons. Of this amount 70 percent were grapes, etc.

Figure 11.2  
**Countries Exporting Fruits and Vegetables To  
 U.S. That Require Methylbromide Fumigation**



Total U.S. fruit and vegetable imports for FY 1985-87 that required methylbromide fumigation average 297.5 thousand metric tons.

ing FY 1991 was about 2.06 billion kg, so about 25 percent of these imports were fumigated or precleared.<sup>3</sup>

If MBr's use as a quarantine treatment in the United States is phased out, one possible alternative is for the affected produce to be fumigated with MBr at the point of origin or in transit rather than at the port of entry. However, if the implied objective of the U.S. Clean Air Act is to eliminate the contribution of quarantine fumigations to depletion of the ozone layer, then shifting the location of fumigation would not accomplish this. This leads to the possibility of future development and use of a closed fumigation system that recycles MBr, presumably with higher average costs of fumigation.

#### ***Policy Implications of the U.S.-Mexico Tuna/Dolphin Dispute***

If the reasoning used in the U.S.-Mexico tuna/dolphin case prevails, it is not clear that the GATT would allow a unilateral U.S. ban on imported produce fumigated with MBr in an open system. The end characteristics of the imported product are presumably the same regardless of whether the product is fumigated with MBr at the port of entry or at the point of origin, therefore, under the product could not be banned on the basis of its performance.

The justification for such a ban would rest on the negative environmental effects of the processing method used.

<sup>3</sup> Taken from Table 9 of "Foreign Agricultural Trade of the United States, Fiscal Year 1991 Supplement," Washington, D.C., May 1992.

Given that U.S. producers and exporters would also be prohibited from using MBr fumigation, such a ban might be viewed as nondiscriminatory, thus satisfying the requirements of Article III of the GATT regarding national treatment. However, the GATT panel ruling in the U.S.-Mexico tuna/dolphin dispute indicated that Article III requires a comparison between products. Therefore, an import ban could not be justified on the basis of an objectionable processing method in the exporting country that did not create differences in products relative to the end characteristics of products processed domestically.

The emissions resulting from MBr fumigation of U.S. fruit and vegetable imports at the point of origin take place outside of U.S. jurisdiction. The December 1992 proposal for amending the Montreal Protocol would freeze MBr production for signatories at 1991 levels in 1995 but exempt quarantine uses as essential uses. It is not clear that such an exemption can be granted in the United States under the U.S. Clean Air Act. International consensus would appear to favor allowing quarantine fumigation to continue.

The interpretation of Article XX derived from the U.S.-Mexico tuna/dolphin dispute suggests that an importing country cannot enforce domestic environmental regulations regarding exhaustible natural resources outside its domestic jurisdiction. Therefore, there may be no justification under the GATT for restricting imports of MBr-treated produce. Any environmental benefit derived from eliminating ozone-depleting quarantine treatments under the U.S. Clean Air Act would be correspondingly reduced. An additional effect produced is a transfer of revenue from the



providers of MBr fumigation services in the United States to the exporting country as a result of extinguishing the demand for fumigation services in the United States. The estimated value of this revenue transfer is \$12 million to \$25 million over 5 years.

### **Broader Environmental and Agricultural Trade Issues Considered**

The value of the environment to the public is increasingly recognized as is the difficulty in designing institutions for maintaining or enhancing its quality under freer trade, given the disparate contributions to existing pollution and the existing resource base among countries. These issues can be politically charged, where highly developed nations are viewed by developing nations as having used extensive pollution and environmental degradation as a path to wealth, but now suggest that their current more stringent regulations be adhered to by the less wealthy developing nations. Among these issues two stand out as truly global common problems having implications for the agricultural sectors of Western Hemisphere countries, global warming, and biodiversity.

#### ***Global Warming and Biodiversity Are Related Issues***

The emissions of certain gases into the atmosphere create a "greenhouse" or warming effect by causing the retention of heat. While the scientific evidence is not certain on the causes or the effects of global warming, its effects and the potential for disaster have generated interest in addressing the problem in the near future. The primary greenhouse gas is carbon dioxide, comprising about two-thirds of the total. Other gases are methane, nitrous oxide, and chlorofluorocarbons. The United States leads all countries in total and per capita emissions of CO<sub>2</sub>. In 1989, U.S. total emissions from fossil fuels and cement manufacture were 1.329 billion metric tons (mt) of carbon, compared to 5.822 billion mt for the world and 258 million mt for Latin American and Caribbean countries. Compared to these countries, the total U.S. carbon emissions were about 50 times higher and per capita emissions about 9 times higher.

Because plants remove carbon dioxide from the air through photosynthesis, both agriculture and forests have a role to play in the reduction of CO<sub>2</sub> levels. Among the greenhouse gas mitigations considered by The National Academy of Sciences are reforestation about 70.9 million acres of economically and environmentally marginal farmland and nonfederal forests (about 3 percent of U.S. land area), estimated to sequester 10 percent of U.S. CO<sub>2</sub> emissions. This demonstrates the importance of maintaining existing forests because of the vast quantities of carbon they retain and synthesize. Latin American forests comprise nearly 60 percent of the world's total tropical forests. Agricultural options included reducing methane emissions by eliminating all paddy rice production, reducing ruminant animal production by 25 percent, and reducing the release of nitrogen by curtailing nitrogen fertilizer use by 5 percent. Further, the forests and agriculture could be engaged in biomass production, a source of renewable energy that

recycles the CO<sub>2</sub>. To the extent this occurs, the demand for land to grow trees or agricultural crops for energy could affect the relative price structure facing the agricultural and forest sector.

Closely related to global warming is the issue of biodiversity. The same natural resource base and ecosystems involved in the global warming problem are the focus of the interest in the value of biodiversity. The fear is that the loss of ecosystems systems will result in the sacrifice or waste of diverse and invaluable flora and fauna species. The ecologists' case for preserving ecosystems is that standard economic analysis will always underestimate the value of wild species in terms of commerce, scientific knowledge, and aesthetic pleasure. Each species is part of an interdependent system that is placed at risk with its loss. The extent of the system's decline with each subsequent species loss, and the point of ecosystem irreversibility is not known. Wilson argues that cost-benefit analysis applying to a single species is inappropriate, and that a "safe minimum standard" should be applied instead. Each species would be treated as an irreplaceable resource "to be preserved for posterity unless the costs are unbearably high."

Economic decision making becomes increasingly difficult in cases where risks are characterized both by "low" probability and "high" damage. Treating random events as their expected values can be shown to generate overinvestment by risk-neutral decision makers. The uncertainty of the outcome of an irreversible action creates value in postponing an action, or maintaining the "option" to take the action later. This is not to suggest that irreversible decisions not be taken, but that the options value can be alternatively viewed as an additional cost to be considered in a benefit-cost analysis when the outcome is unknown.

In the Western Hemisphere, there is clear interest in preserving the remaining tropical forests (mainly the Amazon), the few Western old-growth forests remaining in the United States, and in the management and regeneration of forests throughout. The issue is complicated by the fact that private sector and national interests may not be consistent with the multinational interests of maintaining or protecting the world's existing forests. In developing countries, the loss of the forests is tied to policies that promote the logging of tropical forests for export sale and that provide incentives for agricultural land expansion. Furthermore, extreme poverty provides people with incentives to destroy the forests in pursuit of subsistence agricultural practices. Thus, in the developing countries, economic growth and development will play a primary role in taking the pressure off the forests.

The United States is faced with similar problems. The management of public forests and lands has become a major conflict in certain areas of the country. In the Northwest in particular, the debate over the management of remaining old-growth forest has become polarized into whether or not the Endangered Species Act should be allowed to end logging that would at best provide fewer and

fewer workers with employment over the next decade or so. The dispute is yet to be resolved.

However, in a separate action reflecting the need for alternative approaches, Secretary of Interior Babbitt has announced a program of ecosystem preservation to assist in the implementation of the Endangered Species Act. The idea is that intact ecosystems need to be preserved to maintain suitable habitat for species before they get to the brink of extinction.

As demonstrated by a case in California, maintaining an ecosystem may very well require economic sacrifice. Land owners there gave up certain development rights for current habitat preservation, thereby avoiding the uncertainty of later intervention. They could enjoy a windfall profit generated by higher values for the remaining land. A similar agreement was announced, approving a plan by the Georgia-Pacific Corporation to protect the habitat of the red-cockaded woodpecker. Thus there could be significant changes in the implementation of current conservation programs and perhaps the development of new ones.

### Concluding Comments

The GATT is increasingly being required to delve into matters that more greatly intrude on national sovereignty. These matters in the past have included technical standards, the protection of health and safety through sanitary and phytosanitary measures, and now are extending to the protection of the environment. The GATT principles of most favored nation, national treatment, transparency, and the application of the least trade restrictive measures are applicable to environmental regulations. Additional provisions in the GATT may not be necessary. However, the recent U.S.-Mexico tuna-dolphin dispute and the convening of the GATT Working Party on Environmental Measures and International Trade suggest recognition of the need to consider alternatives for reconciling the goals and objectives of the GATT with those of multilateral environmental agreements and domestic environmental laws.

From a broader perspective, the problems of environmental quality and economic growth are increasingly recognized as closely related, demonstrating the role that markets can play in valuing and allocating resources. However, the issues of global warming and biodiversity are clear where markets fail to reflect the increasingly recognized value of intact forests and ecosystems to all people and nations. The development of a consistent and compatible set of domestic and international laws and institutions to address problems of trade and environment will take time and compromise. Agriculture depends upon and influences the quality of the natural resource base, and agricultural trade can be a positive force in economic growth and development. Thus, the agricultural sector has a clear interest in the future debates and agreements that will shape the policies governing economic development and trade, the environment, and the use of natural resources.

### References

- Charnovitz, Steve (1991). "Exploring the Environmental Exceptions in GATT Article XX," *Journal of World Trade*. 25 pp. 37-55.
- Dasgupta, Partha (1982). "Environmental Management Under Uncertainty." *Explorations in Natural Resource Economics*. eds. V. Kerry Smith and John V. Krutilla, Resources for the Future.
- Federal Register* (1993). March 18, pp.15014-15049.
- Fisher, Anthony C. (1981). *Resource and Environmental Economics*. Cambridge University Press. pp.138-139.
- Forsythe, Kenneth W. and Phylo Evangelou (1993). "Costs and Benefits of Irradiation and Other Selected Quarantine Treatments for U.S. Fruit and Vegetable Imports," an Invited Review Paper presented to the International Atomic Energy Agency/United Nations FAO/WHO, Aix-en-Provence, France, March.
- GATT Secretariat (1990). "Draft Agreement on Technical Barriers to Trade," MTN.GNG/NG8/W/83/Add.3/Rev.1, Oct.
- GATT Focus*. Various Issues.
- GATT Secretariat (1992). "Trade and the Environment." Feb. 3.
- International Trade Reporter, Bureau of National Affairs, Inc., Washington, D.C., various issues, 1990-1992.
- National Academy of Sciences (1991). *Policy Implications of Greenhouse Warming*. Washington, DC: National Academy Press.
- New York Times*. Various Issues.
- Schelling, Thomas C. (1992). "Some Economics of Global Warming." *The American Economic Review*. Volume 82, No. 1, March.
- Tuszynski, Carol and Jan Grimes (1992). "Economic Impact of Losing Methyl Bromide as a Quarantine Treatment for Nine Selected Commodities." *The Biological and Economic Assessment of Methyl Bromide* prepared by the National Agricultural Pesticide Impact Assessment Program of the United States Department of Agriculture. July (draft).
- United Nations Environmental Programme (1991). *Environmental Effects of Ozone Depletion: 1991 Update*. November.
- United Nations Environmental Programme (1992). *Montreal Protocol Assessment Supplement, Synthesis Report of the Methyl Bromide Interim Scientific Assessment and Methyl Bromide Interim Technology and Economic Assessment*. June.



United Nations Environmental Programme (1992). *Report of the Fourth Meeting of the Parties to the Montreal Protocol on Substances that Deplete the Ozone Layer*. November.

U.S. Congress, Office of Technology Assessment (1992). *Trade and Environment: Conflicts and Opportunity*. OTA-BP-ITE-94 Washington, DC: U.S. Government Printing Office. May.

Wilson, Edward O. (1992). *The Diversity of Life*. The Belknap Press of Harvard University Press, Cambridge, MA.

World Bank (1992). *World Development Report 1992: Development and the Environment*.

World Meteorological Organization (1991). *Scientific Assessment of Ozone Depletion: 1991*. Global Ozone Research and Monitoring Project-Report No. 25.

### *Special Articles (cont.)*

## **Producer Subsidy Equivalents for Canada, Mexico, and the United States**

*Canada supported its agriculture more than either Mexico or the United States in every year from 1984 to 1991. The Canadian support averaged 34 percent of the value of gross receipts during 1982-91, compared to 23 percent in the United States and Mexico. Canadian support increased to 38 percent from 1989 to 1990-91, while U.S. support was relatively stable and Mexican support declined. The average annual support for specific commodities in the three countries varied from negative for Mexican dairy, beef, and egg producers, up to 58 percent or more of gross receipts for Canadian dairy products, U.S. sugar, and Mexican corn. [Frederick J. Nelson]*

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Government support to agriculture is measured using producer subsidy equivalents (PSEs), and can be expressed as the value of transfers or the percentage PSE. The value of transfers is the aggregate amount of benefits received by producers from various government policies. The percentage PSE equals the value of transfers as a percent of gross receipts. This second PSE provides a better basis for comparing producer incentives in different countries.

Based on the percentage PSE, support in Canada was the highest among the three countries during 1982-91--accounting for 34 percent of gross receipts in Canada, compared to 23 percent in Mexico and the United States (table 12.1).<sup>1</sup>

The value of transfers of a commodity or a country is the sum of estimated subsidies from various specified policies, including such items as direct income payments to farmers; agricultural input subsidies; commodity market price effects of import restrictions, export subsidies, and exchange rate controls; and budget outlays by governments

for programs that provide general support to production agriculture (see box for definitions).

### **Differences in Crop, Livestock, and Country Support and Policies**

Canada provided the highest agricultural producer subsidy equivalent (PSE) support during 1982-91, and also had the highest support for livestock. Mexico provided the highest support for crops, while livestock producers were supported much less than those in the Canada and the United States. Some Mexican producers actually faced net negative subsidies in several years since 1982, because of government price policy. Support for livestock and for crops was closer in Canada and the United States than in Mexico (table 12.2).

Canada and the United States relied heavily on market price intervention and direct income support policies in providing subsidies to producers. Mexico relied primarily on market price intervention programs and production input subsidies. Market price intervention was the most important category of support for all three countries, but support for the U.S. crop sector was primarily direct income support (table 12.3).

Among the three countries, Mexico depended most on market price intervention, with 62 percent of total transfers from this source. The type of government support influ-

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<sup>1</sup> Commodities included in this study (tables 12.4 and 12.5) cover 87 percent of Canadian agricultural production, 76 percent of Mexican agricultural production, and 68 percent of U.S. agricultural production. Information for this article was provided by Mark Simone for Canada, Constanza Valdes for Mexico, and Frederick Nelson for the United States. See other articles in this report and references at end.

## Definitions

**Income support**—Direct income payments to producers, including benefits from government programs affecting per unit returns as long as they do not increase market prices to consumers. Includes U.S. deficiency payments, net crop insurance benefits, and marketing loan payments.

**Price intervention**—Producer benefits from programs that cause a difference between domestic market prices and world market prices. Includes effects of import quotas and export subsidies.

**Input assistance**—Producer benefits from programs that reduce the cost of credit and other inputs used in the agricultural production process.

**Marketing assistance**—Producer benefits from programs that reduce agricultural marketing and processing costs, including storage and transportation subsidies.

**Infrastructure**—Producer benefits from programs that have long-run implications for the productivity or structure of the agricultural production sector. Includes research and extension and land development projects.

**Regional support**—Producer benefits from various programs of state, provincial, or other subnational governments.

**Economy-wide policies**—Producer benefits from programs not specific to agriculture, but which have significant and distinguishable effects on the sector. For example, this category of support measures effects of exchange rate policies, income tax laws, and general transportation subsidies.

**Total value of transfers**—Sum of the above individual measures, from income supports through economy-wide policies.

**Direct payments**—A subtotal composed of income support, plus storage payments for the United States.

**Gross receipts**—Value of production plus direct payments.

**Percentage PSE**—Total value of transfers, divided by gross receipts.

**Table 12.1**  
Producer subsidy equivalents for Canada, Mexico, and the United States, 1982-91 average

	Canada	Mexico	United States
--- Million U.S. dollars ---			
Policy category:			
Income support	1,247	120	7,528
Price intervention	2,856	1,274	10,734
Input assistance	65	921	3,001
Marketing assistance	23	--	1,062
Infra-structure	428	--	1,067
Regional support	371	0	1,458
Economy-wide policies	0	508	928
Total value of transfers	4,991	2,823	25,777

### Derivation of Percentage PSE:

Value of production	13,422	12,461	103,438
Direct payments <sup>1</sup>	1,247	120	8,328
Gross receipts <sup>2</sup>	14,669	12,581	111,766
Percentage PSE <sup>3</sup>	34%	23%	23%

Note: -- = Not available.

- 1 Includes income support and for the United States, storage payments.
- 2 Value of production plus direct payments.
- 3 Generally equal to the total of all specified subsidies in table 1, divided by gross receipts. The 1982-91 average in this table was calculated as the simple average of 10 individual years' percentages.

**Table 12.2**  
Percentage PSE, 1982-91 average

	Total	Crops	Livestock
Canada	34	33	35
Mexico	23	49	7
United States	23	27	20

ences the distribution of program costs among groups in the economy. Taxpayers pay for transfers that do not directly affect agricultural commodity market prices. Consumers pay for market price intervention transfers, unless increased prices are offset by government transfers to consumers--such as occurred for Mexican wheat and dry beans in 1982-87.

The United States relied more on direct income support than did the other countries--providing 28 percent of total transfers from this source. Mexico relied more on support from input assistance than did the other two countries--obtaining 34 percent of its subsidies from this source.

## Market Price Intervention Policies Support Agriculture

The largest market price intervention transfers in each country were from Canadian dairy and poultry price supports and import quotas; Mexican price supports, assisted by import licenses and tariffs; and U.S. dairy and sugar price support programs, assisted by import quotas. Price intervention transfers are measured as the observed inter-



Table 12.3

Source of support in Canada, Mexico, and the United States, 1982-91 average<sup>1</sup>

	Total	Crops	Livestock
<hr/>			
	-----	Percent	-----
Support from market price intervention:			
Canada	58	40	74
Mexico <sup>2</sup>	62	61	71
United States	42	13	72
Support from direct income support:			
Canada	23	36	11
Mexico	4	5	-1
United States	28	54	-1
Support from input assistance:			
Canada	1	2	1
Mexico	34	34	30
United States	12	14	10

1 Shares for 1982-91 were derived as the simple average of annual shares calculated from transfer values in domestic currencies.

2 The Mexico market price intervention share equals the price intervention share plus the economy-wide (exchange rate subsidy) share, since both measures relate to price distortions (see later text).

nal/external price difference for a commodity, multiplied by total production. Price intervention transfers are affected when governments, such as Mexico, establish exchange rates that differ from market exchange rates.

### Canadian Price Policies

Canada used production controls, import quotas, and administered prices to provide dairy and poultry producers price intervention transfers worth CAN\$2.132 billion per year during 1982-91.

Canadian programs for dairy are implemented by marketing boards at both the federal and provincial level. Dairy production is set by an annual quota, and import quotas are used to complement domestic production controls. Butter and skim milk powder prices are supported through Marketing Board purchases at the support level. Excess dairy products are exported through producer-financed levies. The Canadian poultry sector has separate national marketing boards for chicken, turkey, and eggs, and receives support similar to that of the dairy sector.

The next most important source of price intervention transfers in Canada comes from the subsidized rail system. The Canadian Western Grain Transportation Act (WGTA) transfer--averaging CAN\$955 million per year in the PSE accounts--assists Western prairie producers in transporting

eligible grains and oilseeds to Western Canadian ports and Thunder Bay, Ontario. Subsidized transportation rates reduce the price paid at the border for Canadian wheat, thereby increasing exports.

### Mexican Price Policies

Price intervention transfers provided to Mexican producers averaged 2,757 billion pesos per year. Mexican producers also received additional price-related transfers related to the government's control of exchange rates. Official exchange rates are used to measure the price intervention transfer for the PSEs. A separate exchange rate transfer is then included in the PSE economy-wide policy category to capture the effect of any exchange rate distortion on internal/external price differences. Total price-related transfers in Mexico are, therefore, the *sum of price intervention transfers and exchange rate transfers*.<sup>2</sup>

The 10-year average exchange rate transfer in Mexico was -270 billion pesos, per year, so total price-related transfers averaged 2,488 billion pesos per year for 1982-91. The exchange rate transfer exceeds the price intervention measure in some years and changes the overall trend in total price distortion.

Mexican price support before 1989 was accomplished through government purchases of crops at uniform, nationwide, guaranteed minimum prices, through import restrictions, and through exchange rate manipulations. Starting in 1989, the Government of Mexico eliminated the price guarantee program for all supported crops except corn and dry beans and substituted a new system for the other crops involving "agreement prices," based on a compromise among producers, the government, and consumers. Market price intervention continues to be the most important source of support in Mexico in 1989-91. Crop PSEs, however, averaged 38 percent for 1989-91 -- the lowest of the entire period studied.

### U.S. Price Policies

The most important U.S. price intervention transfers come from domestic price supports for dairy and sugar, supplemented by import restrictions. Guaranteed minimum prices are provided by government loan rates for sugar cane and sugar beets, and by government purchase prices for dairy products. The 1982-91 average transfers for dairy and sugar amounted to \$8.845 billion per year.

The next most important U.S. price intervention transfer is from the EEP, which provided a subsidy of \$1.054 billion

<sup>2</sup> PSE accounting conventions divide total transfers related to price distortions into two components when a country has an official exchange rate that differs from the equilibrium rate. The first component, "price intervention transfers," measures internal/external price differences using the official exchange rate to convert external prices into domestic currency. Price intervention transfers equal this price difference multiplied by production. The second component, "exchange rate transfers," is calculated as the change in the external price (in domestic currency) due to the exchange rate distortion, multiplied by production.

per year during 1982-91. This subsidy is based on the average value of the EEP bonus targeted to selected foreign consumers to help keep U.S. agricultural products competitive in world markets. The commodity bonus averaged over all exports is multiplied by production to obtain the PSE.

### **Direct Income Support Policies Also Benefit Agriculture**

The most important direct income support programs in each country were Canadian Western Grain Stabilization Act payments (WGSA), Mexican crop insurance program benefits, and U.S. deficiency payments.

#### ***Canadian Income Policies***

The Canadian WGSA is a partially subsidized government program that provides income transfers to producers when net cash flow falls below a 5-year moving average. The amount of the transfer financed by the government budget was worth an average of CAN\$330 million per year during 1982-91. The next three important sources of income support are the Dairy Commission payments, Special Grains Program, and Wheat Board deficits.

#### ***Mexican Income Policies***

Crop insurance benefits in Mexico were provided through subsidized insurance premiums prior to 1990. The average value of benefits was 86 billion pesos per year during the 1982-91 period. Mexico also provided fiscal transfers, or direct payments aimed at encouraging production of grains and livestock. Only the dairy fiscal payments are available at this time for the PSEs.

#### ***U.S. Income Policies***

The U.S. deficiency payment program provided transfers of \$5.277 billion per year during 1982-91. Participants in acreage reduction programs received deficiency payments equal to the difference between the announced target price and the higher of the market price or commodity loan rate, multiplied by eligible production.

The next most important source of income support transfers in the United States was diversion payments--amounting to \$1.600 billion per year for 1982-91, including payments-in-kind (PIK), dairy diversion payments, and other diversion payments.

### **PSEs Exceed 50 Percent of Gross Receipts for Three Commodities**

Percentage PSEs for specific agricultural commodities in Canada, Mexico, and the United States vary considerably, from zero or negative for Mexican dairy, beef, and eggs, up to as much as 69 percent of gross receipts. PSEs for each commodity/country combination were ranked to identify highest support levels. The highest three PSEs were for Canadian dairy, U.S. sugar, and Mexican corn, each with a PSE of 58 percent or more of gross receipts (tables 12.4-12.5).

### **Support Levels Varied Widely During 1982-91**

Aggregate support for all three countries followed a similar pattern during 1982-91, peaking in 1986 or 1987 at about double levels earlier in the decade, declining through 1989, and then increasing again (figure 12.1). The pattern of changes for all crops combined mirrored that of the total PSE for all countries (figure 12.2). Livestock support trends, however, were quite different from the crop trends (figure 12.3). Price intervention transfers and direct income support caused most variations in Canadian and U.S. PSE levels during the study period. Price intervention and exchange rate transfers were the main factors in Mexican PSE patterns. Other policy components of the PSEs have been very stable (figures 12.4-12.6).

PSE patterns for individual commodities, by country, show some significant similarities and some significant differences (figures 12.7-12.15). The similarity of patterns for wheat and barley was particularly striking. Mexican PSE patterns tended to be quite unique in the case of soybeans, poultry, beef, and pork.

#### ***Price Intervention Trends***

Canadian and Mexican market price intervention support (before adding the exchange rate transfer) increased over time, while the U.S. price intervention measure showed a near zero rate of growth. Total price-related transfers in Mexico (price intervention subsidies plus exchange rate subsidies) peaked in 1986-87, and then declined to earlier levels. Excluding 1986-87, no overall increasing or decreasing trend was evident for total price-related transfers in Mexico despite the policy reform of 1989.

Mexico had an *undervalued* official exchange rate during 1982-88, which provided price-related transfers to its producers equal to approximately 9 percent of the value of crop production and 10 percent of the value of livestock products each year. Undervalued as defined here means the official exchange rate understated the number of dollars that could be purchased with one peso in an open market for currency. An overstatement of the number of dollars per peso occurs if there is an official overvaluation of the exchange rate. Exchange rates were *overvalued* from 1989-91, so the transfers due to exchange rate control, were negative.

#### ***Income Support Trends***

Canadian and U.S. direct income support has been trending upward over the period while Mexican income support levels were near level. U.S. income support has declined every year but one after the peak year of 1986. Canadian income support declined after 1986, but Canada then introduced a half dozen new income support programs during 1987-91 to remedy the effects of lower world prices and drought--thereby increasing Canadian PSEs (see the Canada article in this report).



**Table 12.4**  
Comparison of PSEs by commodity, 1982-91 average

Country	Commodity	PSE percentage
Canada*	Dairy	69
U.S.*	Sugar	60
Mexico*	Corn	58
U.S.	Dairy	49
Mexico*	Soybeans	48
Mexico*	Sorghum	46
U.S.	Rice	44
Canada*	Barley	41
U.S.	Wheat	40
Canada	Rye	40
Mexico*	Wheat	39
Mexico	Dry beans	38
Mexico	Sesame seed	36
Canada	Wheat	36
U.S.	Barley	36
Mexico*	Poultry	32
U.S.	Sorghum	31
Canada*	Oats	30
Canada	Rapeseed	28
U.S.	Corn	28
Mexico*	Pork	28
Canada	Flaxseed	28
Canada	Sugar	27
Canada	Poultry	22
Canada	Corn	20
Mexico	Cotton	16
Canada	Soybeans	13
Canada	Beef	12
Canada	Pork	11
U.S.	Oats	10
U.S.	Poultry	9
U.S.	Beef and veal	8
U.S.	Soybeans	8
U.S.	Pork	6
Mexico	Dairy	-2
Mexico	Beef	-5
Mexico	Eggs	-9

\* = This country had the highest level of support for this commodity.

Note: Each commodity/country combination was ranked separately.

### *Annual Pattern of Changes in Support*

The similarity in patterns of support among the three countries reflects the mid-eighties and early nineties sag in world market prices and the common program approaches that link the level of support received inversely to world market price levels. The programs in the three countries rely extensively on guaranteed prices as a means of reducing risk and increasing incomes.

When market prices for grain and livestock sagged in the mid-1980's, income and market price support doubled in the three countries studied. This spike in support was also influenced by changes in legislation in the United States and Canada. The EC, Australia, and Japan also saw grain support swell in the mid-eighties. Grain support in these countries increased again in the nineties as prices sagged once more.

**Table 12.5**  
Comparison of PSEs, by country, 1982-91 average

Commodity/Country	PSE percentage
Dairy:	
Canada*	69
U.S.	49
Mexico	-2
Sugar:	
U.S.*	60
Canada	27
Corn:	
Mexico*	58
U.S.	28
Canada	20
Soybean:	
Mexico*	48
Canada	13
U.S.	8
Sorghum:	
Mexico*	46
U.S.	31
Barley:	
Canada*	41
U.S.	36
Wheat:	
U.S.	40
Mexico*	39
Canada	36
Oats:	
Canada*	30
U.S.	10
Poultry:	
Mexico*	32
Canada	22
U.S.	9
Pork:	
Mexico*	28
Canada	11
U.S.	6
Beef:	
Canada	12
U.S.	8
Mexico	-5

\* = This country had the highest level of support for this commodity.

Note: Each commodity/country combination was ranked separately.

There have been no significant effects on the PSEs of Canada or the United States due to the U.S.-Canada Free Trade Agreement that went into effect on January 1, 1989. If the current proposal for the NAFTA becomes a reality, Mexican prices and PSEs, except for dairy and sugar, could be significantly reduced in the future. The government of Mexico, however, might increase direct income support or make other allowable domestic policy changes to partly

Figure 12.1

**Total PSE's by Country**

Percent

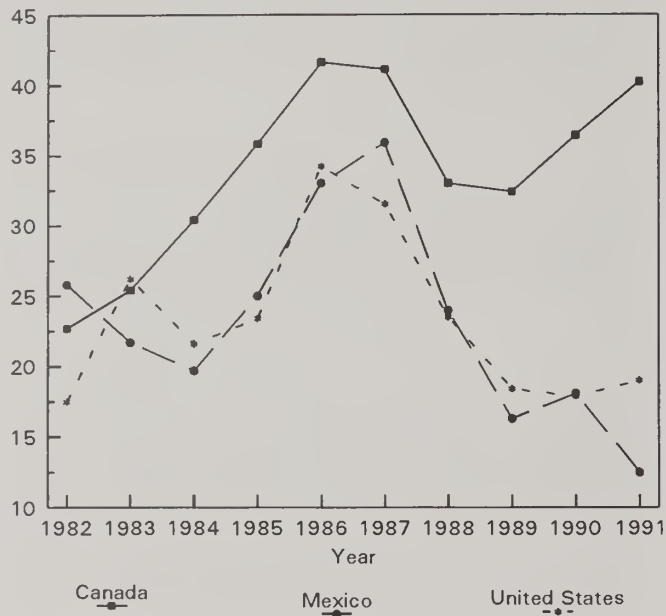


Figure 12.3

**Livestock PSE's by Country**

Percent

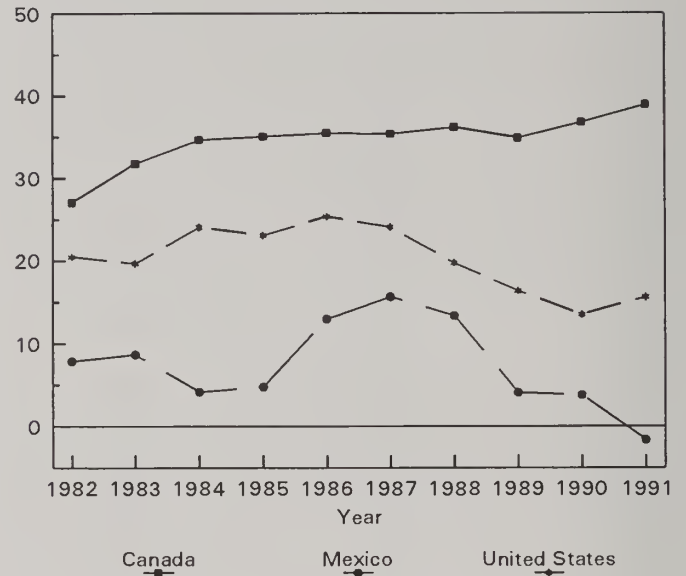


Figure 12.2

**Crop PSE's by Country**

1982-91

Percent

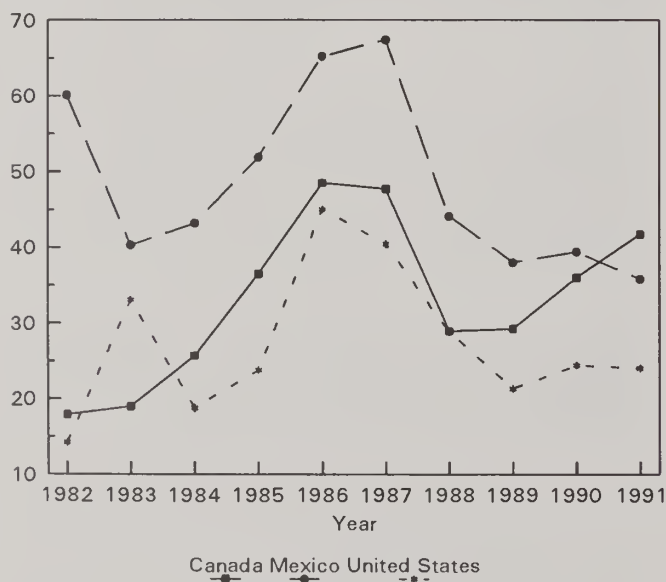


Figure 12.4

**Canadian PSE's, by Policy Category**

Percent

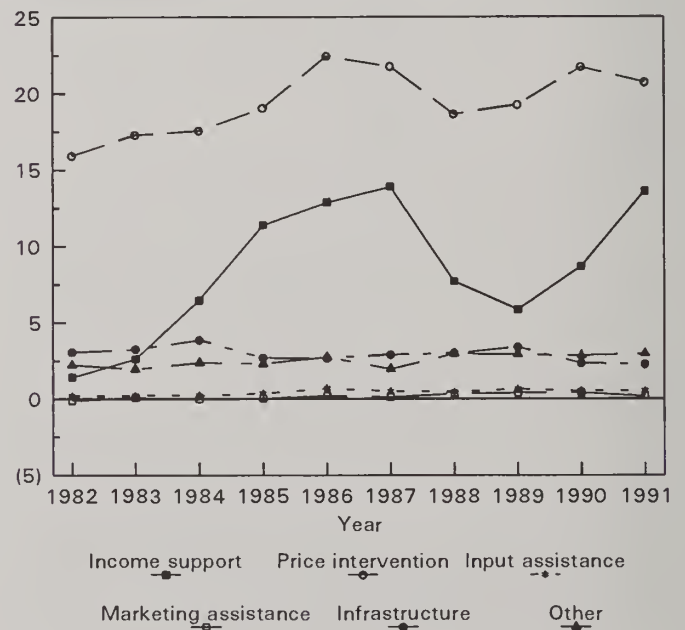




Figure 12.5

**Mexican PSE's, by Policy**

Percent

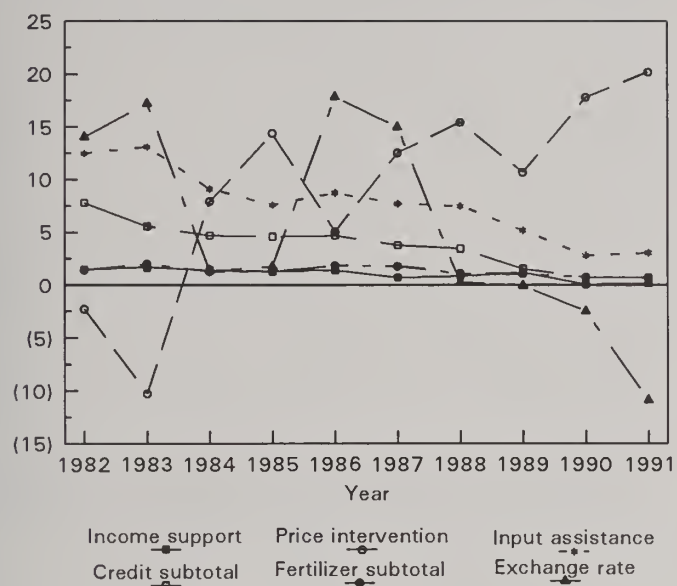


Figure 12.7

**Wheat PSE's by Country**

Percent

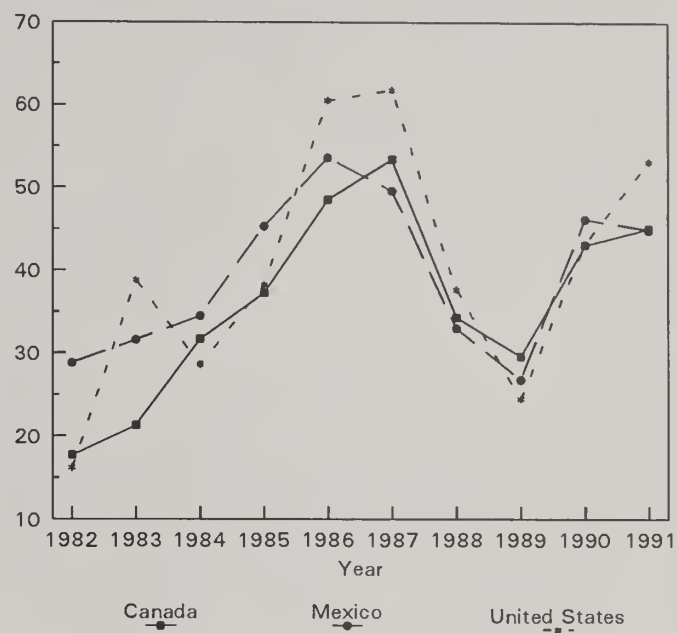


Figure 12.6

**United States PSE's, by Policy Category**

Percent

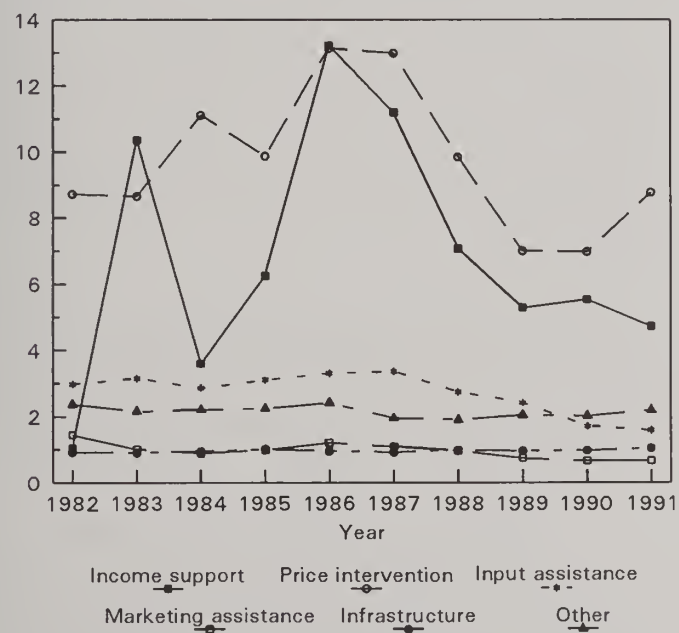


Figure 12.8

**Corn PSE's by Country**

Percent

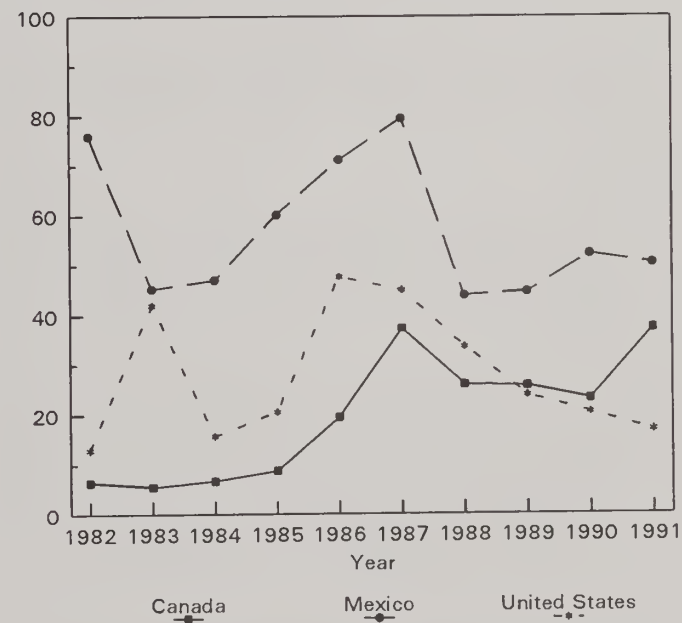


Figure 12.9

**Soybeans PSE's, by Country**

Percent

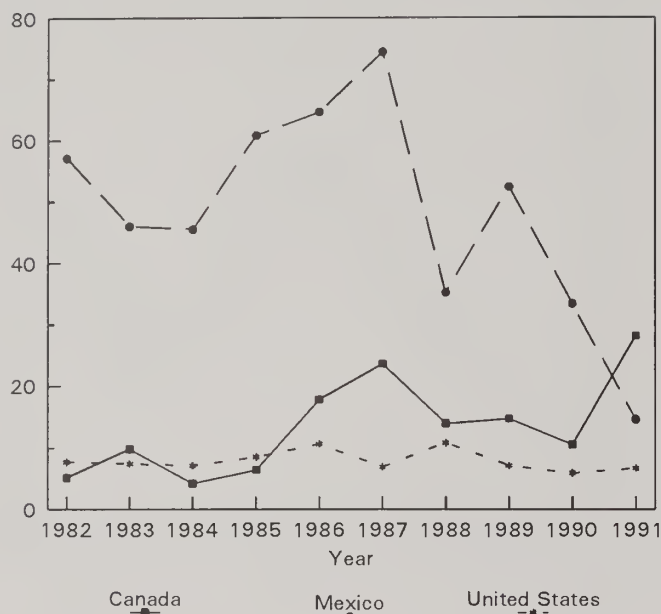
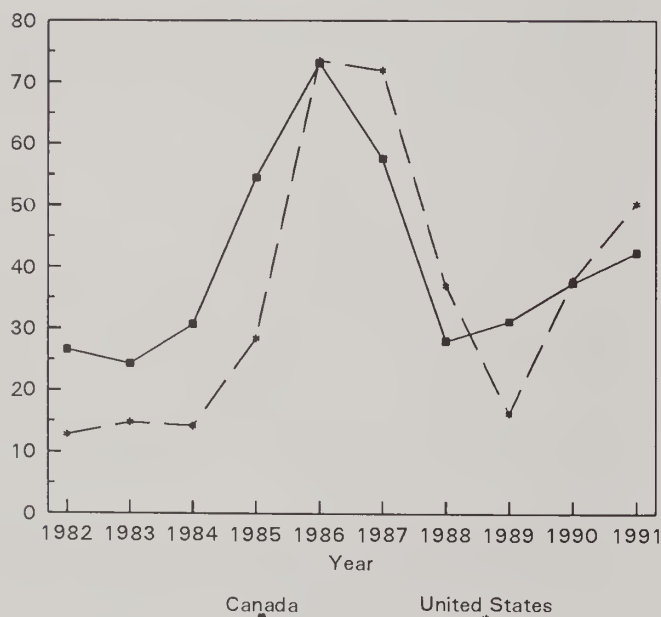


Figure 12.10

**Barley PSE's, by Country**

Percent



compensate producers for reduced prices under the NAFTA. This compensation would keep Mexican PSEs from falling as much as they would otherwise.

U.S. support for all 12 of the studied commodities combined increased from 18 percent in 1982 to 34 percent in 1986 the first year of implementation of the Food Security Act of 1985. Under the Act, U.S. commodity loan rates were decreased and the EEP was started. With the price

Figure 12.11

**Sugar PSE's, by Country**

Percent

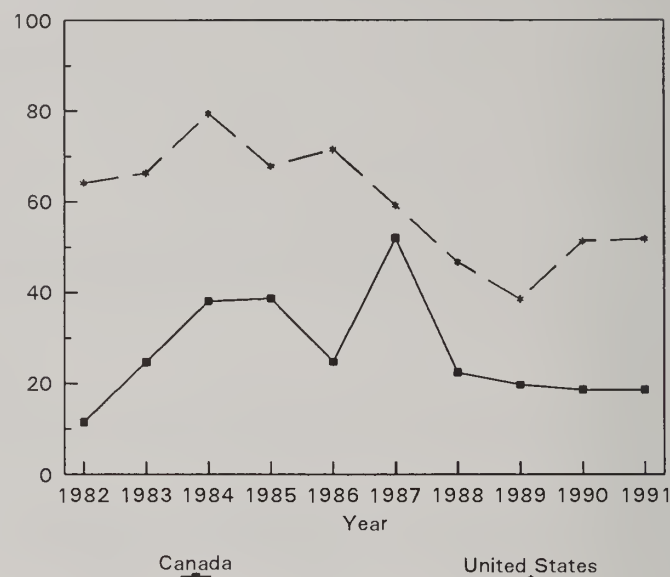
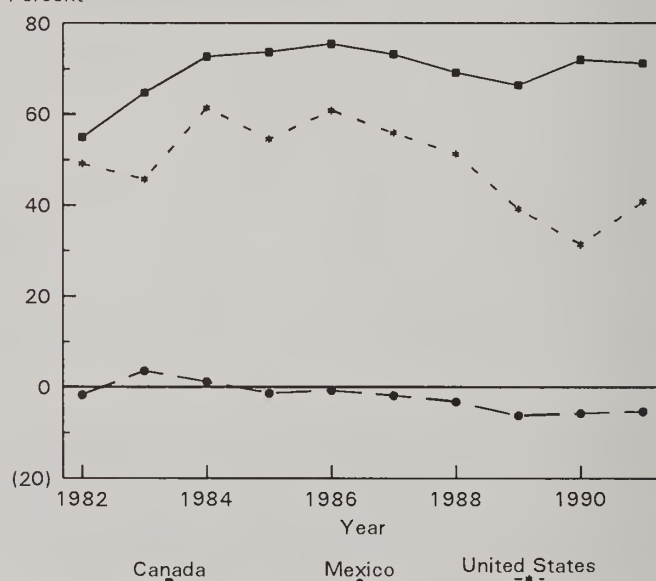


Figure 12.12

**Dairy PSE's, by Country**

Percent



slump and program changes, U.S. support payments and market price transfers jumped in 1986-87. Support decreased to low 1982 levels by 1989-1991, as the North American drought reduced supplies and buoyed prices.

U.S. support increases in 1990-91 were significant for wheat, barley, and sugar, but not for crops overall. Market price decreases and the EEP account for most of the recent increases in U.S. support.



Figure 12.13

**Pork PSE's, by Country**

Percent

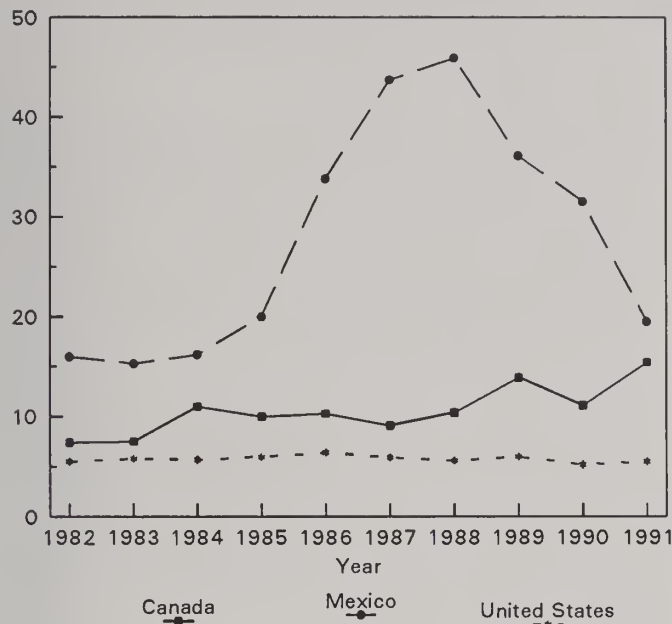
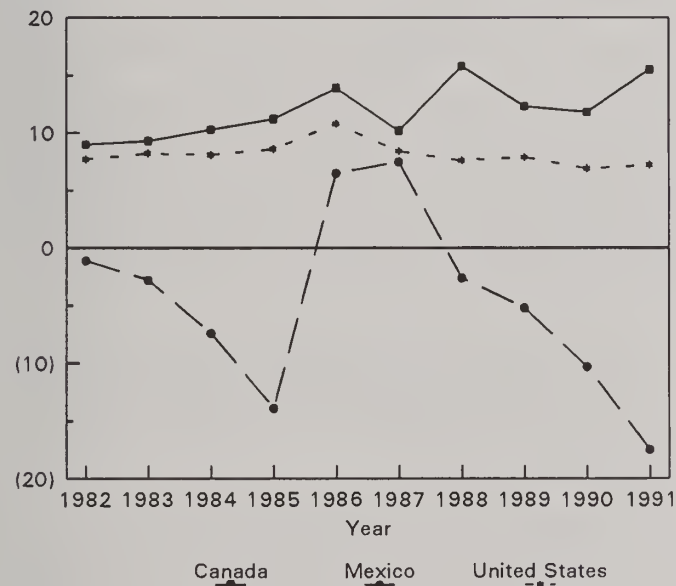


Figure 12.14

**Beef PSE's, by Country**

Percent

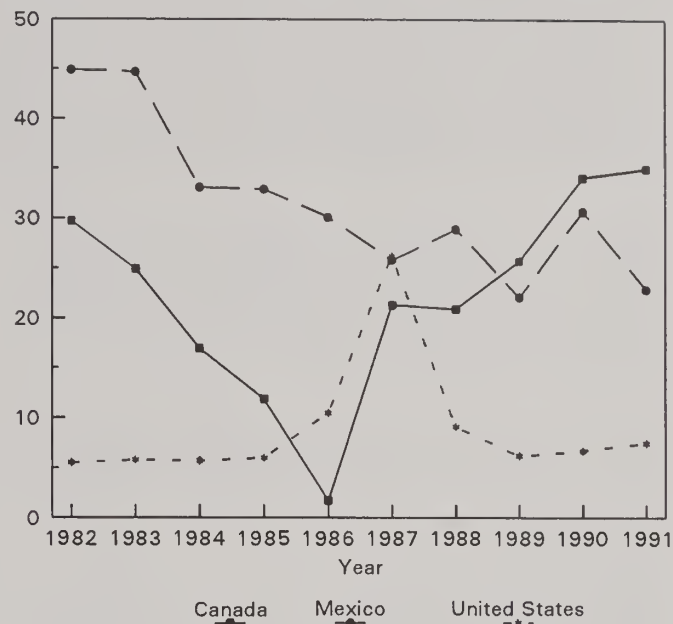


Canadian support increased the most during 1990-91. Typically higher than in other countries, Canadian support has been increasing faster than support in the other countries since 1988. The Canadian PSE increased from 23 percent in 1982 to 41-42 percent in 1986-87 in response to lower world market prices and increased payouts under the Western Grain Stabilization Act and the "ad hoc" Special

Figure 12.15

**Poultry PSE's, by Country**

Percent



Canadian Grains Program. The Canadian PSE decreased to 32 percent in 1989, and has subsequently increased to 40 percent. The 1990-91 increase reflects higher income support for wheat and feed grains in 1991, as well as increased price intervention support due to decreased world market prices in 1990.

Mexican support levels closely followed those of the United States, except that the peak level was 36 percent in 1987 instead of 1986.

**References**

Nelson, Frederick J., Mark Simone, and Constanza Valdes (forthcoming). *Agricultural Support in Canada, Mexico, and the United States*. ERS/USDA Agricultural Information Bulletin.

OECD (1991). *Tables of Producer Subsidy Equivalents and Consumer Subsidy Equivalents, 1979-1990*. OECD/GD (91)128 Paris.

Roberts, Donna, and Paul Trapido (1991). *Government Intervention in Latin American Agriculture, 1982-87*. USDA/ERS/ATAD Staff Report AGES 9152. September.

Webb, Allan, Michael Lopez, and Renata Penn (1990). *Estimates of Producer and Consumer Subsidy Equivalents--Government Intervention in Agriculture, 1982-87*. ERS/USDA Statistical Bulletin No. 803. April.

## Policy Reform in Chile: Implications for U.S. Trade

*The policy reforms underway in Latin America will affect the agricultural sectors and agricultural trade of these countries. [Lon Cesal]*

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Chile has one of the most open, market-driven economies in the world, following reforms launched in the 1960's. Between 1930 and 1960, Chile pursued an inward looking import substitution development strategy that assumed a country's domestic industrial sectors would prosper by protecting them from the international economy.<sup>1</sup>

Chile's trade policy reforms began in 1974 with the elimination of almost all nontariff barriers, and a significant reduction in its uniform equivalent tariff rate from 94 percent in 1975, 20 percent in 1977, and 10 percent by 1982.

Chile's macroeconomic policy reforms were extensive: financial market liberalization (1975-80), tax (1975), public sector (1975-78), labor legislation (1979), and social security (1981) and reforms. These reforms eliminated price and credit controls, multiple exchange rates and ceilings on interest rates. They also removed the government from directly managing a number of enterprises. The power of labor unions was significantly reduced and property rights throughout the economy were made more secure.

Chile revolutionized its agriculture in the mid-1970's by implementing measures that relied on unregulated markets to determine the prices of products and inputs. The government remained involved in only those activities that were strictly regulatory (disease and pest control) or developmental (agricultural research).

Reforms left agricultural producers protected by only an 11-percent ad valorem tariff on all imports. Producers were exposed to some uncertainty and volatility of international prices, there was protection from extremes established by 1982-83 price band schemes for wheat, sugar and edible oils. These schemes use historical international prices to set lower and upper price bands for imports of these commodities. As long as international import prices are between the bands, Chile's domestic producers compete with international prices plus the uniform ad valorem tariff on imports. If international prices fall below the lower price band, Chile imposes a variable import surtax to bring the import price up to the lower band price plus the ad valorem tariff. If the international price rises above the upper price band, Chile decreases its uniform ad valorem tax on imports (up to a maximum of the ad valorem

tariff) to bring the import price down to the upper band price.

### Chile's Policy Reforms Improved Economy

It is exceedingly difficult to establish direct causal linkages between Chile's policy reforms and changes in specific economic performance indicators. However, a clear objective of Chile's policy reforms was a market-directed economy, and in many sectors this objective was achieved. Following Chile's policy reforms, unregulated domestic markets, with only a small buffer between the domestic and international market, determined domestic product and resource prices and consequently the allocation of resources among competing economic enterprises.

Chile's policy reforms improved the performance of its economy. Economic theory supports this conclusion in that removing market distortions improves economic performance.

### Reforms Improve Chile's Macroeconomic Performance

Chile's economic performance fluctuated inordinately prior to its policy reforms. During the period immediately preceding and following Chile's major policy reforms (1972-75), per capita GDP declined by 6.3 percent. Finally, overall economic performance stabilized with a moderately high rate of growth and a reasonable rate of inflation. However, Chile had a major economic crisis in 1982/83.

The Chilean government responded to the crisis with a number of programs and, for the most part, reforms were successful. By the mid-1980's, GDP was growing at almost 6.0 percent and inflation had stabilized at an annual rate of about 20 percent.

### Reforms Affect Chile's Agricultural Development

For over a decade prior to its reforms (1961-1973), Chile's agricultural production grew slowly, about 1.4 percent annually (figure 13.1). Then output doubled to about 2.8 percent in the mid-1970's.

Increases in resource productivity account for a significant part of the recent increase in agricultural output in Chile. Up until the mid-1970's, crop production per hectare in Chile was essentially constant, growing less than 0.1 percent annually (figure 13.1). But, since Chile implemented its policy reforms, crop production per hectare has increased rapidly, about 2.9 percent annually.

Chile's agricultural comparative advantages may be changing due to policy reforms. Before reform, oats production

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<sup>1</sup> This synopsis of Chile's trade policies draws directly on the information in Chapter 1 of "Trade, Exchange Rate, and Pricing Policies in Chile" by Valdes, Alberto, E. Muchnik and H. Hurtado (1990). For a detailed and extensive documentation of Chile's trade policies, see GATT (3 June 1991). For a detailed description of Chile's agricultural trade with the United States, see FAS (Fall 1991).



in Chile was increasing 3 times faster than fruit production, 1.8 versus 0.6 percent per year (figure 13.2). Since the reforms, fruit production has increased almost 3 times faster than oats, 4.6 versus 1.7 percent per year.

### Reforms Also Affect Chile's International Trade

Throughout the 1960's and early 1970's when Chile's markets were fettered by interventionist policies, its total exports and imports increased, but at a relatively slow pace (figure 13.3). With the removal of the restrictions on its markets in the mid-1970's, Chile's exports and imports increased significantly until the onset of its economic crisis in the early 1980's. While Chile's trade declined during

its economic crisis, by the latter part of the 1980's both exports and import were again growing very rapidly.

Chile's total trade balance turned sharply negative following its policy reforms as imports increased much more rapidly than exports (figure 13.3).<sup>2</sup> However, by the end of the 1980's, Chile's exports were growing much more rapidly than its imports and its balance of trade was highly positive.

<sup>2</sup> This deteriorating trade balance was a contributing factor to Chile establishing its price band schemes for wheat, sugar and vegetable oils.

Figure 13.1  
Chile's Agricultural and Crop Production  
Index (1979-81 = 100)

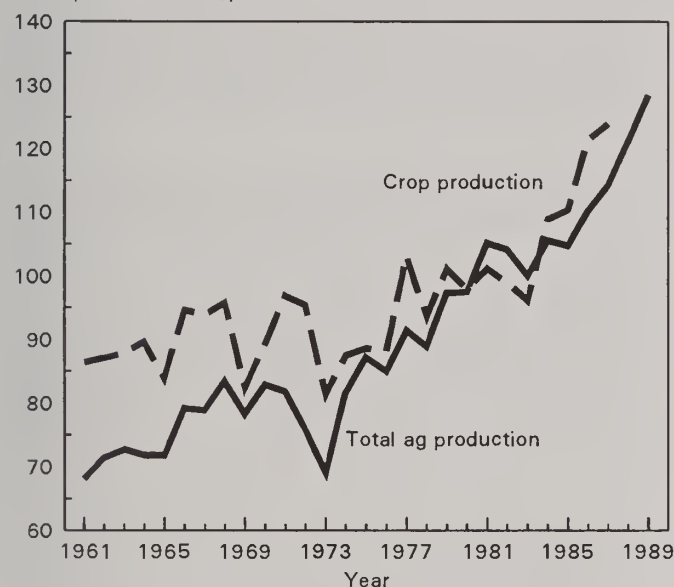


Figure 13.3  
Chile: Selected Trade Data

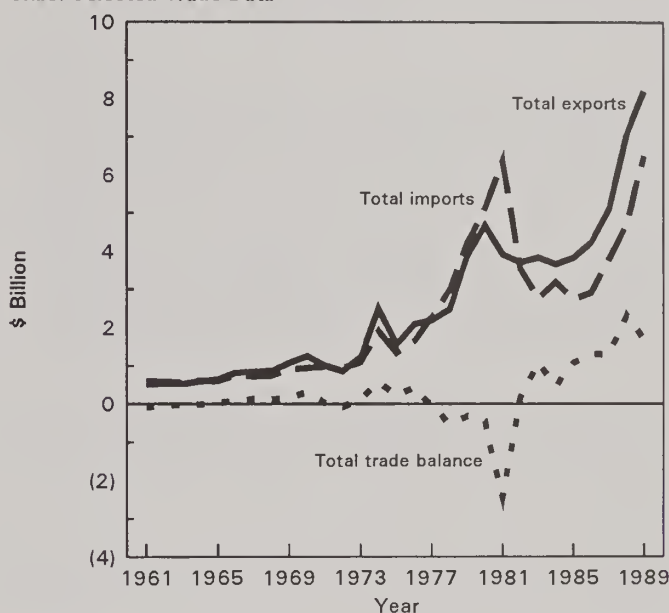


Figure 13.2  
Chile's Fruit and Oats Production

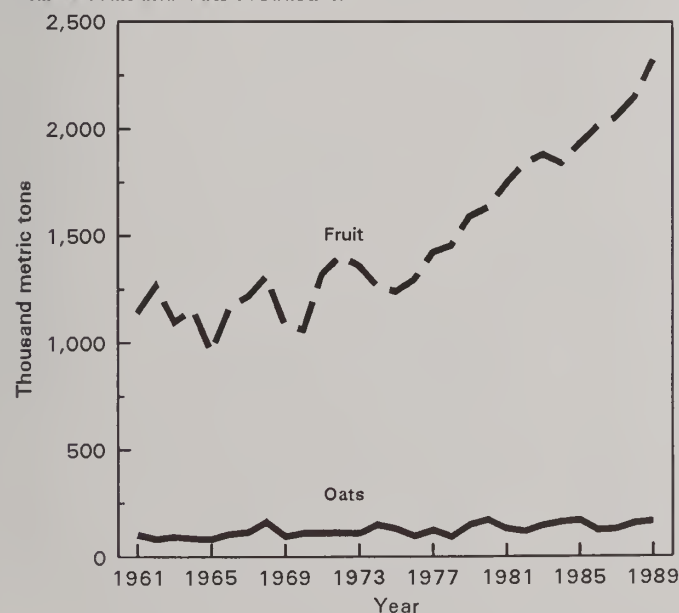
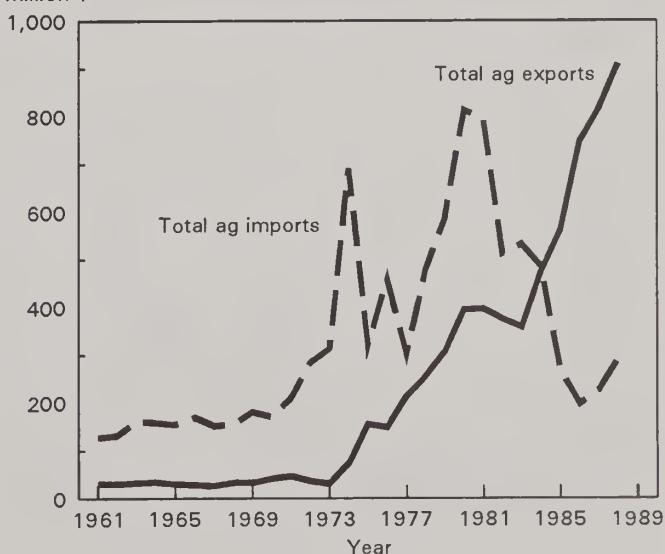


Figure 13.4  
Chile: Value of Total Agricultural Exports and Imports  
Million \$



The unfettering of Chile's markets eventually led in the early 1980's to a pivotal change in agriculture's contribution to Chile's total trade balance as agricultural exports increased sharply and agricultural imports declined rapidly (figure 13.4). Since 1984, the annual rate of growth in Chile's agricultural exports has averaged over 20 percent whereas its agricultural imports have grown less than 1 percent annually. Consequently, Chile's historical agricultural trade deficit has changed to an agricultural trade surplus that reached about \$1.2 billion in 1991.

Underlying the changes in agriculture's contribution to Chile's total trade balance are changes in the relative importance and composition of Chile's agriculture trade. Fruit and vegetable exports (primarily grapes and apples) between the mid-1960's and mid-1980's increased from 40 to 66 percent of total agricultural exports, and from about 4.5 to 15.0 percent of its total exports.

The major commodity groups involved in the restructuring of Chile's agricultural trade were cereals and fruits and vegetables (figure 13.5).<sup>3</sup> During the period of adjustments following its policy reforms, Chile imported more cereals than it exported fruits and vegetables. But, after its adjustments, Chile's production of fruits, especially grapes and deciduous fruits, increased rapidly, which led to a rise in Chile's exports of fruits and vegetables. During the same period, Chile's production of wheat increased rapidly, sharply reducing cereal imports.

#### *U.S. Trade with Chile Changed After Reforms*

Chile's policy reforms affected U.S. agricultural and nonagricultural exports differently. Since the consolidation of re-

forms in the early 1980's, U.S. exports of agricultural products to Chile decreased at an annual rate of over 20 percent whereas the growth in nonagricultural exports increased to almost 15 percent annually (table 13.1).

The composition of U.S. imports from Chile were also affected by the reforms. From the early 1960's to the early 1980's, U.S. agricultural imports from Chile grew over three times faster than nonagricultural imports. But, since the consolidation of reforms, U.S. agricultural imports from Chile have increased about 17 percent annually whereas the growth in nonagricultural imports has declined to less than 1 percent annually.

Prior to the reforms the United States had small agricultural and nonagricultural trade surpluses with Chile that averaged about \$30 million annually (table 13.2). These increased significantly during the policy-adjustment period, 1975 to 1982. But, after the consolidation of Chile's policy reforms in the early 1980's, the U.S. agricultural trade balance with Chile turned sharply negative. Moreover, the nonagricultural surplus with Chile declined.

Cereals (primarily wheat and corn) account for most of the decline in U.S. agricultural exports to Chile. Fruits and vegetables account for most of the increase in U.S. agricul-

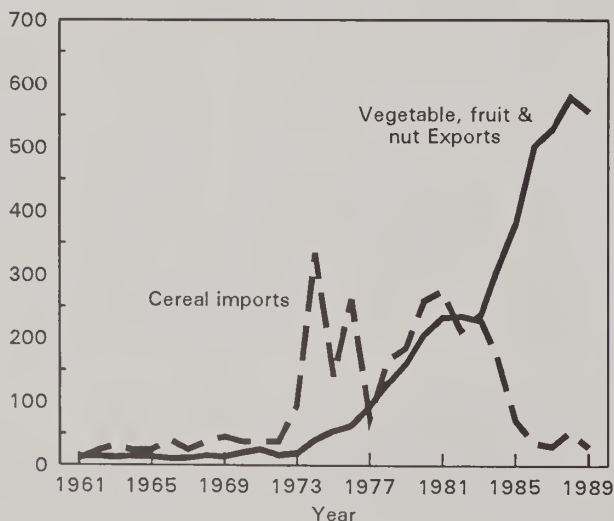
**Table 13.1**  
Average annual growth in U.S. trade with Chile

Type of trade and years	U.S. exports to Chile	U.S. imports from Chile
----- Percent -----		
Agricultural trade:		
1962-74	2.7	7.1
1975-82	11.0	34.8
1983-90	-21.0	16.7
Nonagricultural trade:		
1962-74	7.4	0.5
1975-82	7.2	14.7
1983-90	14.7	0.8
Total trade:		
1962-74	8.4	0.8
1975-82	8.2	17.3
1983-90	9.6	4.7

**Table 13.2**  
Average annual U.S. trade balance with Chile

Years	Agricultural trade	Nonagricultural trade	Total trade
----- Million U.S. dollars -----			
1962-74	31	35	66
1975-82	127	311	438
1983-90	-324	203	-121

**Figure 13.5**  
Chile: Value of Cereal Imports and Fruit and Nut Exports  
Million \$





**Table 13.3**  
Average annual growth in Chile's total and agricultural imports from the United States

Type of imports and years	Total imports	Imports from the U.S.
	----- Percent -----	
Total imports:		
1962-87	13.4	3.6
1962-75	8.3	10.1
1975-87	7.3	-5.8
Agricultural imports:		
1962-87	11.9	4.8
1962-75	8.7	13.5
1975-87	5.1	-7.5

tural imports from Chile. U.S. imports of these commodities increased at an average annual rate of 20 percent between 1982 and 1990, or an average of about \$40 million per year.

The competitiveness of U.S. agricultural exports to Chile was more adversely affected by Chile's policy reforms than total U.S. exports to Chile. Before Chile's reforms, U.S. agricultural exports to Chile were growing about 5 percent faster than Chile's total agricultural imports (table 13.3). But after its reforms, Chile's agricultural imports grew about 5 percent annually whereas Chile's agricultural imports from the United States declined over 7 percent annually.

## Summary and Implications for the United States

Chile's policy reforms eliminated the historical distortions in its product and factor prices which altered the allocation of Chile's resources to free market results. This reallocation of resources altered the volume and composition of Chile's agricultural production, which in turn changed the volume and composition of Chile's trade, especially its agricultural trade with the United States.

Can the affects of Chile's policy reforms on agricultural trade with the United States be generalized to other LA countries? Clearly, each country is different and specific details cannot be generalized. But, the trade response to Chile's policy reforms suggest consideration should be given as to how U.S. agriculture may be affected by further policy reforms in Latin America.

## References

- GATT (1991). "Trade Policy Review Mechanism; The Republic of Chile". Volume A. Report by the Secretariat. June.
- Valdes, Alberto, E. Muchnik and H. Hurtado. (1990) "Trade, Exchange Rate, and Pricing Policies in Chile". Vol. I -- The Country Study, and Vol. II -- Appendixes: Data and Methodology. World Bank Comparative Studies, The World Bank.
- "World Market Reports". (1992) DRI/McGraw-Hill. Dec.

## The Latin America Debt Crisis: A Decade Later

*August 1993 marks the eleventh anniversary of the beginning of the Latin America debt crisis. The problem included an economic slowdown, and increases in farm production supported by government self-sufficiency programs. Switches to other suppliers cut U.S. agricultural exports to Latin America about a billion dollars a year in 1983, 1984, 1986, and 1987. However, improved economic growth and investor confidence indicate that Latin America is pulling out of the debt crisis, portending an increase in U.S. agricultural exports. [Christine Bolling]*

More than a decade has passed since the Latin America debt crisis began. In August 1982, the Mexican government declared a moratorium on paying its debt service to international lenders, heralding in the most widespread debt problem in history.

Mexico, Argentina, and Brazil had the largest foreign debt, followed by Venezuela, Peru and Colombia. Chile carried a large per capita debt load. Latin America accounted for 7 of the top 11 major debtor nations by 1985, and was an important cause of the larger global crisis.

Latin America spent a decade foregoing economic growth because of the debt's drag on the domestic economies and the recovery programs imposed by the governments, World Bank, and the International Monetary Fund (IMF). The debt crisis also meant a cutback in imports, especially agricultural ones, by most Latin American countries. In the 1990's, many of these countries, with the concerted effort of the international lending community, are showing signs of pulling out of the crisis.

The global economic slowdown and the sharp increase in international interest rates resulting from monetary contractions in some OECD countries are often cited as the immediate causes of the world debt crisis. The crisis as it relates to Latin America, has its roots in the early 1970's. International lending to Latin America grew sixfold between 1971 and 1982. Most of the international lending was private credit, mainly syndicated bank loans. Growth in commercial bank lending was triggered by the desire to recycle the petro-dollars from the oil-exporting countries that followed the oil price shock of 1973-74 and Eurodollars from Western Europe.

Increased competition among international banks led to plentiful credit at favorable lending rates. Moreover, Latin American exports grew at a healthy rate, and Mexico, Venezuela, Peru, Ecuador, and Trinidad had growing export earnings from petroleum, making them appear to be good credit risks. Many Latin American economies also grew because of the large infusions of foreign capital, adding to their credit worthiness. At that time, most Latin

American countries could take on additional debt without worsening debt indicators because of rising export prices.

By the late 1970's, Latin America's export earnings began to slow and economic growth slackened, leaving many countries unable to pay the large accumulated debt. Initially, despite the falling debt service-to-export earnings ratios, international lenders continued to offer favorable lending rates (table 14.1). By 1979, when the second oil shock occurred, many industrial countries having difficulties with their fiscal deficits became capital importers, causing a global crowding out in the capital market. International commercial banks reacted to the slowdown by downgrading the credit worthiness of the defaulting countries. The debt crisis had begun. In 1982, Mexico was the first and 24 other countries followed in declaring their inability to service existing debt. Globally, there was an average of 21 debt restructurings a year between 1983 and 1991. Fifty-two countries representing two-thirds of developing country debt, restructured their debt between 1982 and 1991.

The eighties became a decade of concerted efforts by commercial banks and international lending agencies to help

**Table 14.1**  
Latin American debt

Year	Total debt as share of exports of goods and services	Total debt as share of GNP	Total debt service as share of exports of goods and services
----- Percent -----			
1980	195	35	37
1985	313	61	38
1986	377	63	44
1987	366	65	38
1988	312	56	40
1989	275	48	31
1990	254	43	26
1991	258	41	30

Source: World Bank



**Table 14.2**  
Latin American macroeconomic indicators

Year	GNP (nominal)	Exports, goods and services	Imports, goods and services	Total debt	Total debt service	Foreign reserves	Current account balance
----- Billion U.S. dollars -----							
1980	690	124	155	242	46	57	-30
1985	636	125	130	390	48	50	-2
1986	649	109	128	410	48	44	-16
1987	687	122	134	446	46	51	-9
1988	770	137	150	428	55	42	-9
1989	884	154	162	423	47	43	-5
1990	1,015	170	177	432	44	58	-2
1991	1,063	171	194	440	50	75	-19
1992	1,188	180	212	446	55	77	-29

Source: World Bank

these countries work their way out of the crisis, but at a large cost. Latin America spent a decade of hardship through cutbacks in real income growth, high unemployment, and sharp reductions in imports (table 14.2).

### Rebuilding After the Crisis

Commercial banks, acting through the Paris Club (see text box), reacted to the crisis by attempting to rollover and re-schedule much of the debt at more favorable terms. The IMF acted as the mediator between the debtor countries and commercial lenders. The IMF urged debtor nations to reform their macroeconomic policies to quickly enhance their debt servicing capacity by building trade surpluses.

Reforms included abolishing multi-tiered exchange rate regimes, and easing overvaluation of national currencies. Brazil, Chile, Ecuador, Peru, and Uruguay signed comprehensive agreements to reschedule their debt with international lenders, while instituting these types of economic reforms. But these same countries had difficulties meeting the terms of their agreements because the international economy remained sluggish in the early 1980's. The next step was to negotiate multi-year agreements, with Mexico as the test case. By the fall of 1985, these agreements were also recognized as inadequate. Most of the agreements had to be renegotiated because of the generally deteriorating international economy and internal policy failures.

These attempts were followed by the Baker Plan, which focused on growth-oriented policy reform. But the international commercial lending community was not willing to supply new capital to Latin America and other debtor countries, mostly because debt rescheduling and policy reform alone could not reduce the debt.

The Baker Plan was followed by a period in which several market based solutions were incorporated into the country agreements. Cash buybacks and swaps were used in Bolivia, Brazil, and Chile. The 1987 Argentine agreement included a debt reduction option. The 1988 Brazilian package was the first to allow commercial banks more choices

in the repayment plans they could offer to the debtor countries.

Most of the current agreements with Latin America follow the Brady Plan. Costa Rica, Mexico, Venezuela, and Uruguay reduced their debt by more than one-third through IMF agreements and cooperation with the Paris Club through the Brady Plan. In 1992 alone, Mexico reduced its debt by \$7.1 billion through a market buyback scheme where the face value of the debt was exchanged for discount bonds. Argentina and Brazil intend to sign Brady Plan agreements in 1993, which include buybacks at a discount. Brazil paid \$9 billion on past due loans in 1992, leaving \$3 billion.

Possible Brady Plan candidates, Dominican Republic, Peru, and Ecuador, are still under debt restructuring arrangements with the Paris Club and have not been able to fully negotiate agreements with their commercial lenders. Other countries have dealt with the crisis outside the Brady Plan. Colombia paid off its debt as it came due, mostly by curtailing imports. Chile has paid sufficient debt to reestablish access to commercial lending markets.

### The Debt Crisis Intertwined with Other Factors

The effects of the debt crisis on U.S. agricultural trade are intertwined with many other factors that affect import demand such as income growth, agricultural production, choice of trading partners, and international commodity prices. Debt service alone was equivalent to nearly one-third of Latin America's export earnings, and as with the other debtor countries, was neither available for imports nor internal economic growth that could fuel consumer demand. General austerity programs such as cutbacks on available foreign exchange and import licensing and promotion of self-sufficiency in agriculture also immediately cut imports.

The debt crisis limited income growth and import capacity. Latin America's GDP grew 6.5 percent per year between

## Definition of Terms

**Paris Club** - The group of international lending banks formed to alleviate the developing country by rescheduling debt. Through the Paris Club, commercial banks refinanced some of the interest due to them to diffuse the threat to the international banking system. The Paris Club began in the early 1960's to relieve temporary liquidity problems and restructure officially guaranteed intergovernment loans. The name is derived from a private club in Paris, where debt negotiations have been carried out.

**Baker Plan** - Initiated by former U.S. Treasury Secretary Baker in 1985 to assist highly indebted middle income countries (mostly Latin America). The plan supplemented macroeconomic stabilization by focusing on growth-oriented policy reform and invoking increased official financial support. It was envisaged that developing countries reform efforts would be supported by the commercial banks and official financial institutions.

**Brady Plan** - Former U.S. Treasury Secretary Brady introduced a plan in 1989 whereby IMF, World Bank, and other official creditors support comprehensive debt reduction in countries where satisfactory reform efforts were underway. This was to be done by lending funds for buybacks or collateral enhancement in debt exchanges. The plan acknowledges that there is a solvency crisis and commercial banks' voluntary cooperation will be more forthcoming for debt reduction at a discount rather than the providing of new money in the face of mounting debt overhang.

**Arrears** - Falling behind in debt repayments from a debt repayment schedule.

**Buyback** - The debtor country buys back its debt at a discount, often with special bonds.

**Debt equity swap** - Conversion of debt to equity, most often from foreign capital. This is a form of foreign direct investment or other equity investment financed with developing country debt. In debt equity swaps, the original creditor or an intermediary sells loans to investors who convert them into equity investments.

1965 and 1980 and only 1.6 percent between 1980 and 1989, indicating a decline in per capita income during the 1980's.

The debt crisis also influenced agricultural production in Latin America as the region introduced self-sufficiency programs. Since 1980, food production has more than matched population growth in Latin America. Food production, as measured by the FAO index, was 28 percent higher in 1991 than in 1980, while Latin America's population grew by 26 percent to 456 million persons (table 14.3).

Table 14.3

Factors affecting U.S. agricultural trade with Latin America

Year	FAO import unit value index, ag. products	FAO food production index	Per capita FAO food production index	U.S. market share of LA ag. imports
	----- 1980 = 100 -----			Percent
1980	100	100	100	43
1981	105	105	102	44
1982	96	108	103	38
1983	80	109	101	48
1984	86	112	102	46
1985	84	117	104	43
1986	86	116	102	35
1987	78	120	104	37
1988	93	125	105	42
1989	105	128	106	40
1990	99	129	104	36
1991	na	129	103	na

na = not available

Source: FAO

Latin America's choice of trading partners also shifted, particularly in 1982, 1986 and 1987. Latin America's agricultural imports declined in those years, as did the U.S. export market share in those countries. As the same time, Argentina, Brazil, Canada, and the EC were competing with the U.S. for the Latin American market (table 14.3).

International price declines contributed to the debt crisis initially, but prices were also dampened by the crisis. FAO trade indices indicate that unit values of Latin America's agricultural imports peaked in 1981, declined and hit lows in 1983 and 1987, and rose again in 1989 (table 14.3).

The initial decline and gradual recovery in import prices accounted for only part of the change in U.S. agricultural exports to Latin America during the debt crisis years. After the price effect is considered (figure 14.1), the debt crisis and related agricultural production and income growth and shifting trade partners caused U.S. agricultural exports to Latin America to decline by about \$1 billion a year in 1983, 1984, 1985, and 1987 at the height of the debt crisis.

## Debt and Foreign Trade Patterns

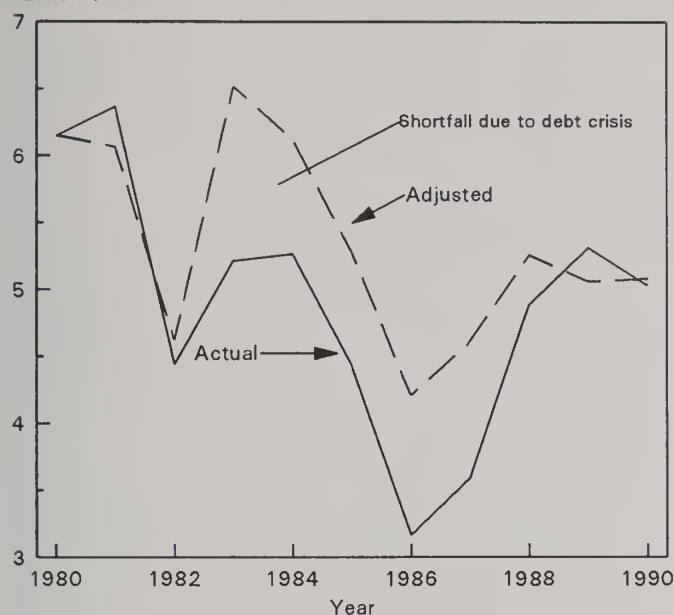
Latin America's agricultural imports from the United States slid in 1982 and 1985-87 (the most severe parts of the debt crisis), and recovered to \$5.6 billion in 1991 (table 14.4), but not to the record \$6.4 billion of 1981. Mexico reduced agricultural imports significantly during the 1980's, especially in 1986 and 1987. Since 1988, Mexico has increased its imports rapidly. While part of the recent increase is due to an improvement in Mexico's debt and general economic situation, part is also due to the Mexican Government's unilateral reduction of trade barriers. Mexico takes over half of the U.S. agricultural exports to Latin



Figure 14.1

**Latin America - U.S. Agricultural Imports**

Billion \$



**Table 14.4**  
U.S. trade with Latin America

Year	U.S. exports to LA	U.S. agr. exports to LA	U.S. imports from LA	U.S. agr. imports from LA
----- Billion U.S. dollars -----				
1980	38	6	37	7
1981	41	6	38	7
1982	32	4	38	6
1983	25	5	41	6
1984	29	5	47	7
1985	31	4	47	8
1986	31	4	42	8
1987	35	4	47	8
1988	44	5	51	8
1989	49	5	57	8
1990	53	5	54	9
1991	63	6	63	8

Source: U.S. Department of Commerce

America and has accounted for most of the growth in shipments to the region in recent years.

Central America's agricultural imports from the United States have nearly doubled since 1985. The Caribbean region's agricultural imports from the United States also have increased since 1986. In contrast, South America's imports from the United States declined from \$1.6 billion in 1985 to a low of \$1 billion in 1990, with a slight improvement in 1991. Venezuela, suffering from a sharp decline in oil revenues and a cutback in imports to meet austerity program goals, trades less with the United States than it did a decade ago. U.S. exports to Latin America during the debt crisis years might have declined even more if PL-480 and EEP had not offset some of the losses.

## References

- Food and Agriculture Organization (1990). *FAO Trade Yearbook*, Rome and previous issues.
- Grigsby, S.E. and John Link (1985). "The Debt: U.S. and Latin American Trade," *Latin America Outlook and Situation Report*, RS-85-9, Washington, DC. July.
- Kim, C.S. (1985). "Most Critical Factors Affecting U.S. Grain Exports to Latin America: Debt, Prices, or Production?" *Latin American Outlook and Situation Report*, RS-85-9, Washington, DC. July.
- The World Bank (1992). *World Debt Tables, 1992-93, External Finance for Developing Countries, Vol. 1. Analysis and Summary Tables*, Washington, DC.
- USDA, Econ. Res. Serv., *Foreign Agricultural Trade of the United States, Calendar Year Supplements*, selected years, Washington, DC.
- U.S. Department of Commerce (1992). *International Trade Administration, U.S. Foreign Trade Highlights, 1991*, Washington, DC.

## Potential Effects of the NAFTA on Mexico's Grain Sector

*Mexico has undertaken significant policy reforms that liberalize agricultural markets. A North America Free Agreement (NAFTA) would continue this process and lower producer prices, but also increase economic growth, which will increase demand for food and agricultural products, and imports, particularly from the United States. [Constanza M. Valdes and Kim Hjort]*

The NAFTA was signed in December 1992 by Mexico and the United States, with implementation expected in 1994 if ratified by national legislators. Under the agreement, there will be reciprocal trade liberalization between the two countries. Both countries will eliminate nontariff barriers for most agricultural goods immediately after implementation of NAFTA, and replace them with either a tariff-rate quota or an ordinary tariff that will be phased out within 10 to 15 years.

### Agricultural Trade and Policies

Trade restrictions, tariffs, and quantitative controls on imports have been used to promote Mexican agricultural production. CONASUPO (the Mexican Government's agricultural marketing agency) is the sole importer of corn to ensure that imports will not undermine the market for the domestic crop. However, private millers are now permitted to import other grains and oilseeds, typically under license or subject to tariffs. Import licenses are required for corn, wheat, barley, malt, dry beans, poultry, nonfat dry milk, fresh cheeses, table grapes, and potatoes. A limited number of import licenses are issued to the livestock industry for feed corn imports.

Under the NAFTA, Mexico will remove or phase out tariffs on nonsensitive commodities and will permit duty-free access to a portion of the market for sensitive commodities. The seasonal (May 16-December 15) 15-percent ad valorem tariff on sorghum will be eliminated immediately. Mexico will also eliminate its licenses for all wheat immediately and apply a common tariff of 15 percent which will be reduced to zero over a 10-year transition period. For corn, the NAFTA will guarantee the United States duty-free access for 2.5 million metric tons (mmt) annually. This access will grow by 3 percent each year over the 15-year transition period of the NAFTA. Quantities above the duty-free access level will have a high initial tariff that will be reduced by 24 percent in the first 6 years, then reduced to zero in the following 9 years.

### Grain and Feed Imports Grew

Mexico's imports of grain and feed products from the United States during the 1988-1992 period averaged \$873 million, in 1992 they reached a record \$1.1 billion. Sorghum was by far the most significant commodity imported

### Methodology

This article analyzes the potential economic effects of the NAFTA on the Mexican wheat, corn, and sorghum sectors, plus two alternative scenarios without a NAFTA are simulated. The first alternative looks at outcomes in Mexico's major grain markets if the NAFTA is not implemented and agricultural price policy reform continues at its expected slow pace. In the other alternative scenario, the implications of a faster reform of the agricultural price support system without NAFTA are analyzed. The results suggest that the largest reductions in domestic grain production, and therefore the largest increases in grain imports, will occur under NAFTA. However, faster reform of price support policy in the absence of NAFTA will also lead to large increases in grain imports.

The tool of analysis is the Country Projection and Policy Analysis (CPPA) Model, which simulates the effects of a gradual, 15-year reduction in ordinary tariffs and tariff rate equivalents (for over-quota amounts) on supply, use and trade for major Mexican agricultural commodities.

The CPPA model is a dynamic, multi-sector, single-country, econometric-based projection (simulation) model. It contains an exogenous macroeconomic sector and endogenous crop and livestock sectors. The model simulates a market economy, with prices and quantities in all markets adjusting to clear markets. Commodities included in the model are aggregate land, vegetables (land use only), cattle, beef, hogs, pork, poultry, eggs (supply only), fluid milk (supply only), wheat, corn, sorghum, barley, cotton (supply only), soybeans, soymeal, and soyoil. The model includes linkages between livestock product production and feed demand, cross-commodity and income effects in supply and demand, as well as an explicit specification of border policy and assumptions on the nature and extent of domestic policy reform.



by Mexico from the United States in 1992, with shipments valued at \$548 million (figure 15.1). Other major grains and products imported in 1992 were corn (\$129 million) and wheat and wheat flour (\$77 million). The United States is Mexico's principal supplier of grains and feeds. Proximity to the market and the availability of export credit guarantees helped maintain and increase the U.S. market share in Mexico over the past decade.

### Agricultural Trends and Policies

Historically, Mexico has implemented commercial and agricultural policies and programs designed to support farm prices and incomes, share the burden of production risk, and assure an adequate supply of low-cost food to low-income, largely urban, consumers. In addition, from time to time, Mexico's major agricultural policy programs have advocated self-sufficiency in grains. Mexican support has relied on market price intervention through border control programs as described above, and also through producer price supports, input subsidies, provision of financial services, marketing and processing subsidies, and price controls at the consumer level. As part of the economic reform process initiated in 1987, Mexico has moved toward more market-oriented agricultural policies, liberalization of the agricultural sector, and privatization of the various agricultural public enterprises through a process of mergers, liquidation, and sales.

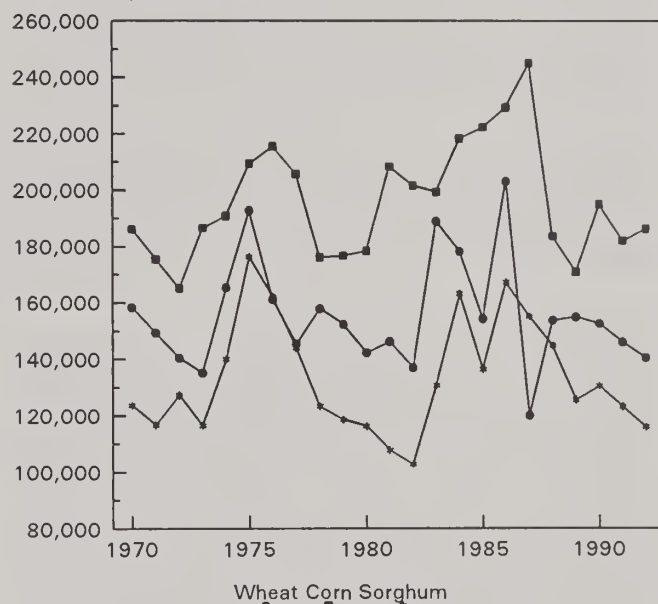
#### Producer Policies Change

From the early 1950's until 1989, the Mexican Government set uniform nationwide support (guarantee) prices for all basic crops. The guarantee price was supported by CONASUPO through farmgate purchases of major crops at a fixed minimum price, which generally exceeded the world market price. The relative levels of support for the major grains have varied considerably over time. In the

past 3 years, corn support prices have been high relative to sorghum and wheat (figure 15.2). As a consequence, there has been substitution of corn production at the expense of other crops.

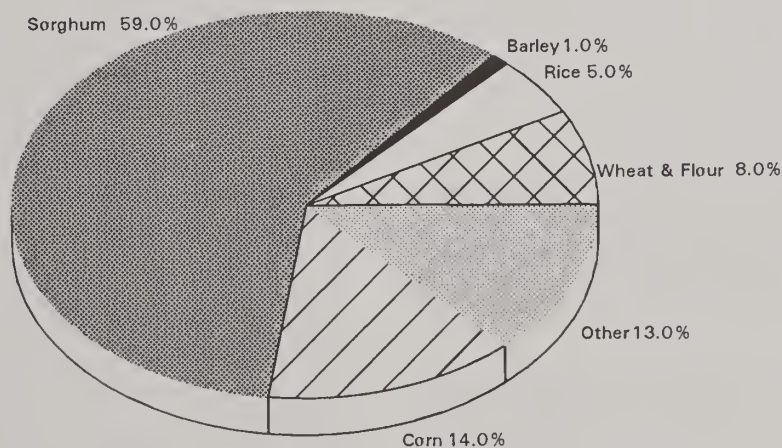
Part of the relative decline in support prices for wheat and sorghum was due to a recent policy shift. Beginning in late 1989, for basic commodities other than corn and dry beans, the government eliminated the traditional producer guarantee price system. A new system of "agreement prices" was put in place for wheat, sorghum, rice, barley,

Figure 15.2  
Producer Support Prices for Major Grains  
1987 Pesos/Ton



Source: Cuatro Informe de Gobierno, 1992

Figure 15.1  
Composition of U.S. Grains & Feeds Exports to Mexico, 1992



Value: \$1,060 million

Source: FATUS

and soybeans. Under this system, a price is negotiated between the producer and industrial users, with intervention by government representatives.

Not all of the domestically produced crop is purchased at the support or agreement price. Nonsupport price sales earn the "open market" price which reflects the support price, a carrying cost margin, and supply/demand conditions.

### *Input Subsidies Also Change*

In addition to price supports, the government has long employed input subsidies to stimulate grain production. Production inputs that are provided at below-market prices include credit, crop insurance, fertilizer, pesticides, seeds, irrigation water, electricity, and fuel. Recent agricultural policy reform measures are reducing the amount of untariffed subsidies for producers.

Yield advances have slowed during the past decade, following rapid gains during the Green Revolution period. Less investment, an unfavorable land tenure system, as well as a large subsistence sector have inhibited technology and irrigation adoption.

### *Consumer Food Prices Subsidized*

For decades, Mexico has placed price controls on almost all basic foods, including corn, wheat products, dairy, eggs, poultry, and pork. To enable food processors to sell their output at low consumer prices fixed by price controls, the government, through CONASUPO, offsets processors' high input prices with subsidies. CONASUPO purchases some of the marketed surplus of the domestic grain crop at the guarantee price and then resells it to processors at a lower price. Millers are then expected to pass these reduced costs along the marketing chain to consumers.

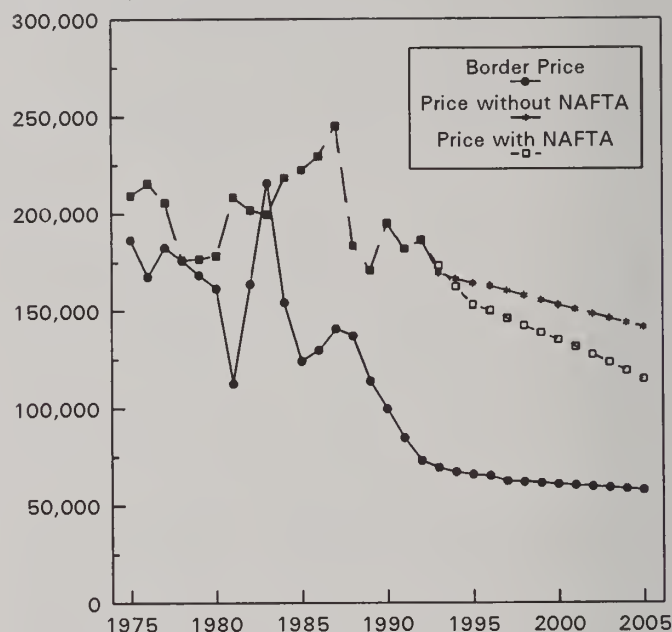
In addition, as part of the government's nutrition policies, CONASUPO implemented a targeted subsidy program in 1986, the Tortibonos Program, to control the price of corn tortillas and wheat bolillos for low-income consumers. Some consumers must pay the "open market" price. The "open market" price reflects "open market" producer prices and the import cost of the grain. The weighted average of administered and "open market" prices is generally about 54 percent above border prices.

### *Issues Affecting Crop Trade in the 1990's*

NAFTA will change Mexico's grain import demand and domestic market structure. But domestic agricultural policy reform independent of the NAFTA is also very important to the grain sector. Although domestic pricing and subsidy issues are not part of NAFTA, Mexican import demand is sensitive to them.

The guaranteed corn price is probably the single most important policy instrument in determining trends in the Mexican agricultural economy. Mexico is expected to lower the guarantee prices of sensitive commodities, including corn over the next 15 years. This is expected to

Figure 15.3  
**Alternative Corn Support Prices**  
1987 Pesos/Ton



occur under the NAFTA because price policy has, since 1988, continued in the direction of adjusting domestic prices to reflect both world prices and producer costs (to reduce budget expenditures), while easing out of market intervention. Consistent with current market-oriented price policies for nonsensitive crops, agreement prices for sorghum and wheat will approach world market prices at a faster rate under liberalized trade.

If the NAFTA is not ratified, agricultural price policy reform may continue but at a slower pace. This means that tight trade restrictions could remain in place and domestic prices of corn, wheat, and sorghum will be higher than under the NAFTA. Under such conditions, domestic production will remain more protected and so imports will be lower. An alternative path that could be taken is quicker agricultural price policy reform. If corn guarantee prices are lowered faster than currently anticipated, producer incentives could quickly shift land and technology away from corn and into other crops. This would result in lower corn production and higher imports. The impact in nonsensitive crop markets may be the reverse--higher production and lower imports.

### *Three Possible Scenarios*

Tables 15.1-15.3 present the results for wheat, corn, and sorghum under the NAFTA and alternative scenarios. With trade liberalization taking the form of "tariffication" of quotas and reductions in tariffs over time, domestic prices of crops will tend to fall, resulting in less production, more consumption, and more imports. In all three scenarios, Mexico's import growth corresponds to a decline in Mexican crop output. However, the magnitude of changes varies by commodity.



## Key Assumptions and Implementation of Policies in the Model

### *Macroeconomic Assumptions*

The macroeconomic assumptions made in the model have a significant impact on expected outcomes. For example, projections of income and population growth play a large role in determining demand and the exchange rate assumptions contribute to the determination of domestic policy prices through conversion of world prices to pesos. Investment in general, and in agriculture in particular, affects input availability, costs, productivity, and structural changes in the agricultural sector. Specifically, the macroeconomic assumptions are:

- Mexico's austerity program and the domestic and trade liberalization efforts of the past few years will continue through the mid-1990's.
- Real GDP growth is assumed to follow a gradual acceleration to the late 1990's, ranging from 4.1 in 1992 to a high of 6.0 in 1994, and then declining to average 5 percent through the remainder of the NAFTA transition period. Without the NAFTA, annual real GDP growth is assumed to be 0.5 percent below the NAFTA scenario.
- Inflation is expected to come down to 14 percent by the end of the decade, and will continue to decline gradually to below 10 percent by 2005.
- The real exchange rate will depreciate gradually through 2005.
- Liberalization of trade policy, either under a NAFTA or unilateral efforts, leads to conversion of quotas to tariff equivalents.

### *Agricultural Sector Assumptions*

In general, it is assumed that agricultural investment will gradually increase during the 1990's, as financial constraints are eased because of growing confidence in the economy. That assumption dictates expected trends in inputs, productivity, and the determinants of policy prices. Structural changes in the livestock-feed economy influence the feed demand projections. Specifically, the agricultural sector assumptions are:

- Agricultural land is mobile among crops with crop planting decisions based on expected returns.
- Capital is mobile in the long run, and measured by increases in multiple cropping.
- Production inputs are assumed to be perfectly elastic in supply.
- Input subsidies are reduced for all but the poorest farmers (mostly subsistence corn producers).
- Productivity growth will improve gradually, as available technology and increasing investment gradually offset the effects of reduced input subsidies.
- World prices are exogenous (i.e., Mexico is a small country in a trade sense).
- Widespread consumer food subsidies will be too costly to be maintained throughout the 1990's, so subsidies will be better targeted at low-income consumers.
- As domestic corn prices fall, the Mexican government will gradually relax the current tight restrictions on feeding corn.

### *Prices and Trade with a NAFTA*

Under NAFTA (scenario 1), the removal of all tariffs and quotas in the agricultural sector as required under the NAFTA is simulated, leaving all domestic agricultural protection and programs intact. Downward adjustments in guaranteed prices for corn and other commodities will accelerate and there will be some decrease in marketing margins. These border and price changes will lead to a doubling of grain imports to about 14 mmt by 2005 (table 15.1). The fastest growth in imports occurs in the corn market where protection has been relatively high in the past. Demand will grow faster, fueled by population and per capita income growth as well as lower prices, resulting in strong growth in imports.

### *Prices and Trade Without NAFTA*

A second scenario considers a continuation of slow trade (i.e., no NAFTA) and agricultural liberalization, leaving all

Mexican subsidies to agricultural producers, food processors, and consumers intact. Under this scenario, it is assumed that the current rate of downward adjustment in guarantee/agreement prices for corn and other commodities is continued. This will result in substantially higher support prices than under a NAFTA and subsequently will reduce grain import demand in 2005 by about 2 mmt (table 15.2). As expected, the largest difference between the results occurs in the corn market. Without the income effects of NAFTA, livestock product demand will be lower and there will be fewer incentives for the government to permit the use of corn for feeding. Therefore, feed use of corn will be more restricted, domestic prices will be higher, and over all, consumption will be nearly 6 percent lower by 2005. That reduction in consumption reduces corn import demand by 35 percent relative to the NAFTA scenario.

Table 15.1

Summary of grain projections under a U.S. - Mexico free trade agreement (Scenario 1)

	Annual rate of change						
	1992	2000	2005	1970-80	1980-90	1990-00	2000-05
	----- Million tons -----			----- Percent -----			
Wheat							
Area (million ha)	.73	.80	.81	-0.1	2.3	-1.5	0.3
Yield (tons/ha)	4.14	4.60	4.83	2.9	1.4	1.0	1.0
Production	3.00	3.66	3.89	2.8	3.8	-0.6	1.2
Net imports	1.25	1.33	1.60	21.2	-7.3	12.2	3.7
Consumption	4.30	4.99	5.49	5.6	1.7	1.5	1.9
Feed	.60	.37	.41	16.0	2.6	-1.0	2.7
Corn							
Area (million ha)	7.90	7.90	7.92	0.3	-1.7	1.7	0.0
Yield (tons/ha)	1.90	2.11	2.27	2.5	3.6	1.1	1.5
Production	15.00	16.68	17.94	2.7	1.8	2.7	1.5
Net imports	1.10	3.58	5.19	24.1	-0.4	3.2	7.7
Consumption	16.10	20.23	23.09	4.7	1.5	2.9	2.7
Feed	2.50	3.67	4.92	22.4	4.8	8.3	6.9
Sorghum							
Area (million ha)	.75	.90	.98	2.2	0.1	-2.3	1.7
Yield (tons/ha)	2.93	3.25	3.44	1.5	0.4	0.9	1.1
Production	2.20	2.94	3.38	3.8	0.3	-1.3	2.9
Net imports	5.50	6.25	6.76	47.5	5.6	5.4	1.6
Consumption (feed)	7.70	9.19	10.16	9.25	2.3	3.0	2.0

Table 15.2

Impacts of no free trade agreement with continuation of agricultural price policy (Scenario 2)

	2005		Change from base
	Scenario 1	Scenario 2	
	----- Million tons -----		Percent
Wheat			
Area (million ha)	.81	.84	4.8
Yield (tons/ha)	4.83	4.93	2.1
Production	3.89	4.16	6.9
Net imports	1.60	1.53	4.6
Consumption	5.49	5.68	3.5
Feed	.41	.45	8.8
Corn			
Area (million ha)	7.92	7.93	0.2
Yield (tons/ha)	2.27	2.32	2.2
Production	17.94	18.42	2.7
Net imports	5.19	3.35	-35.4
Consumption	23.09	21.74	5.8
Feed	4.92	4.22	-14.2
Sorghum			
Area (million ha)	.98	.95	-3.1
Yield (tons/ha)	3.44	3.50	1.7
Production	3.38	3.33	-1.5
Net imports	6.76	6.73	-.5
Consumption (feed)	10.16	10.07	-0.9

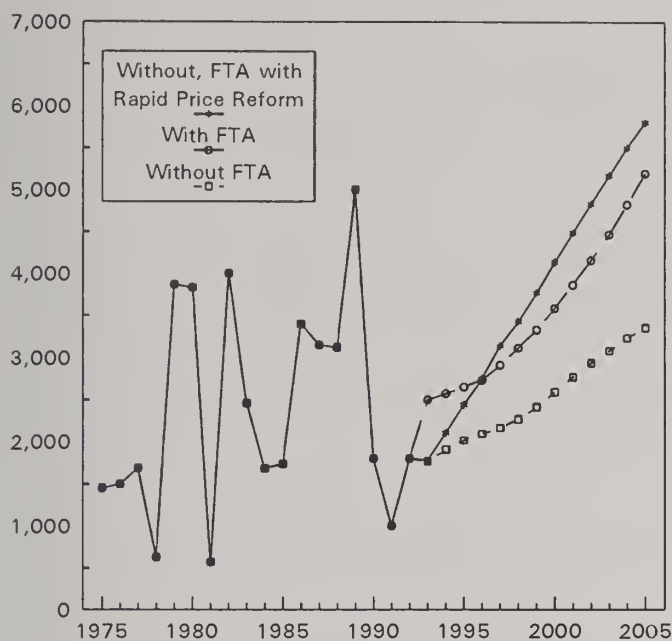
Table 15.3

Impacts of no free trade agreement with reform of agricultural price policy (Scenario 3)

	2005		Change from base
	Scenario 1	Scenario 3	
	----- Million tons -----		Percent
Wheat			
Area (million ha)	.81	.77	-5.0
Yield (tons/ha)	4.83	4.79	-0.8
Production	3.89	3.67	-5.8
Net imports	1.60	1.43	10.9
Consumption	5.49	5.09	-7.3
Feed	.41	.40	-2.9
Corn			
Area (million ha)	7.92	7.88	-0.4
Yield (tons/ha)	2.27	2.21	-2.6
Production	17.94	17.46	-2.7
Net imports	5.19	5.80	11.8
Consumption	23.09	23.23	0.6
Feed	4.92	4.56	-7.3
Sorghum			
Area (million ha)	.98	1.00	1.7
Yield (tons/ha)	3.44	3.42	-0.6
Production	3.38	3.42	1.2
Net imports	6.76	6.46	-4.5
Consumption (feed)	10.16	9.89	-2.6



Figure 15.4

**Alternative Corn Import Levels**  
In Millions**Prices and Trade with Accelerated Policy Reform**

Scenario 3 is a variant of the second, in which Mexican domestic agricultural policies are restructured at a faster pace than expected under NAFTA. Even without NAFTA, budget and other pressures for domestic agricultural policy reform could result in significant changes in crop support levels. It is assumed that guarantee and agreement prices decline at a faster rate than under scenarios 1 and 2. Agricultural price reform in scenario 3 has almost as much impact on corn import demand as does ratification of a NAFTA but has differing effects on other grain imports (table 15.3). Lower corn prices lead to lower corn production. At the same time, lower domestic prices will spur demand, leading to a 12 percent increase in corn imports relative to NAFTA. In the other markets, reform leads to higher relative support prices (relative to the ratio in other scenarios) for wheat and sorghum. This increases production of those crops, leads to substitution effects in food use, and reduces sorghum's competitiveness as a feed.

Therefore, imports of wheat and sorghum are lower than expected under a NAFTA.

**Conclusions**

Mexican import demand in 2005 for corn, sorghum and wheat will range from 12-14 mmt under these 3 alternative trade and agricultural policy regimes. The largest increase in import demand occurs with implementation of the NAFTA. In the absence of the NAFTA, Mexico's grain import demand will be about 14 percent lower if agricultural price policy changes continue at their current pace. However, if price policy changes are accelerated, even without a NAFTA, major grain imports will also grow significantly.

These conclusions suggest that there is great potential for sales to Mexico of corn, wheat, and sorghum over the next 10-15 years. The largest increase in imports, and therefore U.S. sales opportunities, is likely to occur under a combination of a NAFTA with accelerated domestic agricultural price policy reform. Under a NAFTA, imports may not expand significantly in the near term because of the highly restrictive initial over-quota tariff charges. However, in the long run, the closer Mexican support prices are to world prices, the greater the sales potential.

From the Mexican perspective, these conclusions suggest that consumers of major grains will be able to use more at lower prices. On the other hand, there may be some undesirable social costs on the production side. For example, with lower corn support prices, Mexico cannot be self-sufficient in corn production unless investment significantly increases irrigated area and/or yields. Lower corn support prices will also push marginal producers out of farming, possibly leading to large rural migration. The government may be able to reduce labor migration through the adoption of an alternative producer support policy that maintains agricultural incomes, such as direct payments to producers. Direct income support would facilitate the investments necessary on the farms to adapt to the new economic environment. Of course, the feasibility of such reforms depends crucially on the fiscal implications of proceeding with either a revised support program or supporting the unemployed in urban areas.

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## Definition of terms used in Appendix Tables

Term	Meaning
ag	agricultural
ex, excl	excluding
hemi.	hemisphere
incl	including
prep	prepared food made from named commodity
WH	Western Hemisphere
%	percent

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**Appendix Table 1:**  
Estimated population and income, Western Hemisphere

Variable/ Country	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	Annual growth rate <sup>1</sup>
----- Million -----														
Estimated population														Percent
W. Hemisphere, ex U.S.	364	372	381	389	397	405	413	422	430	439	447	456	464	2
Canada	24	24	24	25	25	25	25	25	26	26	26	27	27	1
Mexico	69	70	72	74	75	77	79	80	82	83	85	86	88	2
MERCOSUR	152	156	159	162	166	169	173	176	180	183	187	190	193	2
Andean Group	71	73	74	76	78	80	82	84	85	87	89	91	93	2
Rest of hemi., ex U.S.	49	50	51	52	53	54	55	57	58	59	60	62	63	2
----- Billion dollars -----														
Estimated Gross National Product														Percent
W. Hemisphere, ex U.S.	805	926	1,052	1,060	1,020	1,025	1,029	1,043	1,086	1,174	1,306	1,457	1,591	5
Canada	236	255	287	294	316	343	358	361	386	436	496	541	569	8
Mexico	124	163	217	204	173	164	172	152	145	148	177	215	252	2
MERCOSUR	281	319	324	330	307	303	296	329	355	388	436	493	552	5
Andean Group	106	123	147	158	153	146	136	135	132	133	123	130	133	0
Rest of hemi., ex U.S.	57	66	76	74	72	70	67	66	67	69	74	78	85	2

<sup>1</sup>Annual growth rates are calculated between the 1979-1981 and 1989-1991 averages. The growth rates are quite dependent on the end years chosen. The numbers for the rest of hemisphere and total hemisphere are approximate because of missing data.

Source: World Bank

**Appendix Table 2:**  
U.S. agricultural trade with selected countries; value, by calendar selected years

Trade category Country of destination	1970	1972	1974	1976	1978	1980	1982	1984	1986	1988	1990	1992	Growth rate, 1970-72 to	Growth rate, 1978-84 to
	----- Million dollars -----												Percent	Percent
<b>Total agricultural exports</b>														
Western Hemisphere	1,515	1,714	3,847	3,441	4,798	8,063	6,260	7,226	5,223	6,954	9,289	11,570	16	4
Canada	826	843	1,282	1,501	1,640	1,908	1,820	1,963	1,542	2,019	4,197	4,902	9	9
ALADI	457	589	1,952	1,325	2,409	4,968	3,305	4,031	2,538	3,575	3,575	5,085	22	1
Mexico	156	181	863	370	903	2,469	1,156	1,993	1,080	2,235	2,553	3,791	27	6
Argentina	5	7	10	6	14	50	17	19	28	27	28	116	14	9
Brazil	69	68	240	255	534	682	526	508	566	74	175	148	22	-10
Paraguay	3	1	1	1	1	3	2	1	1	3	6	13	-4	18
Uruguay	2	15	9	2	20	8	3	8	10	3	6	4	3	-4
Chile	32	28	113	125	174	320	246	155	42	53	54	90	23	-11
Bolivia	7	8	28	12	31	34	18	24	37	45	30	41	14	2
Colombia	39	51	138	97	135	266	283	214	110	184	117	214	17	-4
Ecuador	13	21	57	70	81	119	105	151	70	104	95	58	21	-3
Peru	33	72	170	111	130	316	278	176	139	162	160	170	17	-4
Venezuela	98	137	323	276	387	703	671	783	456	683	351	440	19	-6
CACM, Caribbean & Other WH	232	282	613	615	749	1,186	1,134	1,231	1,143	1,360	1,517	1,583	15	4
CACM	50	54	135	138	183	314	224	293	249	333	372	450	17	5
Caribbean & Other WH	182	228	478	478	566	873	910	938	894	1,027	1,145	1,133	15	3

continued--



Appendix Table 2 (continued):

U.S. agricultural trade with selected countries; value, by selected calendar years

Trade category/ Country of origin	1970	1972	1974	1976	1978	1980	1982	1984	1986	1988	1990	1992	Growth rate, 1970-72 to 1978-84	Growth rate, 1978-84 to 1990-92
----- Million dollars -----														
<b>Total agricultural imports</b>													Percent	Percent
Western Hemisphere	2,577	2,872	4,572	4,924	6,838	8,334	7,048	9,026	10,442	9,751	11,348	12,044	11	4
Canada	323	353	527	599	742	1,064	1,396	1,851	2,017	2,443	3,152	4,102	14	11
ALADI														
Mexico	1,613	1,830	2,815	2,802	4,415	5,073	4,098	5,241	6,284	5,780	6,495	6,126	11	3
	513	590	767	711	1,105	1,063	1,158	1,279	2,080	1,820	2,611	2,372	8	8
Argentina	118	120	210	155	213	305	252	314	277	361	388	482	10	5
Brazil	536	660	1,031	962	1,536	2,028	1,495	2,111	1,833	1,867	1,553	1,320	11	-2
Paraguay	10	13	20	16	47	52	25	27	24	16	13	7	17	-16
Uruguay	9	1	3	3	7	9	13	20	20	19	30	38	10	11
Chile	8	6	15	22	35	46	96	157	231	352	480	494	29	19
Bolivia	3	4	3	16	18	21	19	7	7	13	9	10	19	-5
Colombia	199	208	365	471	816	1,025	545	715	1,004	818	790	885	14	1
Ecuador	95	83	175	233	411	356	347	412	560	386	483	389	16	2
Peru	95	115	191	170	172	151	136	167	188	106	90	84	5	-5
Venezuela	27	30	35	43	55	18	11	33	62	23	50	45	-1	6
CACM, Caribbean & Other WH	641	689	1,230	1,523	1,681	2,197	1,554	1,935	2,142	1,528	1,701	1,816	11	-1
CACM	362	407	627	940	1,135	1,430	1,020	1,232	1,511	1,047	1,265	1,454	12	1
Caribbean & Other WH	279	282	603	583	546	767	533	702	631	481	436	363	9	-5

Source: U.S. Census/Customs/FATUS data.

Appendix Table 3:

Total exports and imports by Western Hemisphere countries, by calendar year.

Trade category/ Country	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	Annual growth rate <sup>1</sup>
	----- Billion dollars -----													Percent
<b>Total merchandise exports</b>														
World	1655.5	2024.6	1990.5	1862.5	1825.4	1926.3	1955.0	2148.9	2506.3	2860.8	3085.2	3486.2	3555.9	6
United States	178.6	216.6	228.9	207.2	196.0	212.1	218.8	227.2	254.1	321.8	363.8	393.6	421.9	7
W. Hemisphere, ex U.S.	144.4	180.5	183.5	174.5	181.4	200.2	193.6	177.4	191.4	224.7	240.0	262.2	259.8	4
Canada	56.1	65.1	69.9	68.6	73.5	86.8	87.5	86.9	94.3	112.6	117.2	127.6	127.2	7
Mexico	8.8	15.3	19.4	21.2	24.6	26.6	24.4	16.0	20.7	20.8	22.8	27.0	27.2	6
MERCOSUR	24.1	29.5	34.0	29.2	31.1	36.4	35.3	30.6	34.1	45.0	46.6	46.4	46.2	5
Andean Group	24.2	30.7	26.9	26.0	23.6	23.5	22.4	20.5	18.6	20.6	25.3	31.1	29.3	0
Rest of hemi., ex U.S.	31.2	39.9	33.3	29.5	28.5	26.9	24.1	23.4	23.7	25.7	28.2	30.1	29.9	-2
<b>Total merchandise imports</b>														
World	1669.4	2040.4	2025.2	1903.8	1873.4	1989.0	2032.5	2211.7	2563.2	2935.3	3173.7	3609.2	3692.1	6
United States	207.1	241.2	261.0	244.0	269.9	341.2	361.6	382.3	424.4	459.6	493.2	517.0	509.3	8
W. Hemisphere, ex U.S.	146.1	185.6	194.8	159.9	145.7	160.7	160.2	164.6	177.5	205.5	219.2	235.7	253.9	3
Canada	53.7	59.2	66.3	55.0	61.2	73.7	76.4	81.0	87.6	106.6	114.2	116.8	118.2	7
Mexico	12.6	19.5	25.1	15.1	10.8	14.5	16.2	12.0	12.7	19.6	24.5	31.2	38.5	5
MERCOSUR	28.1	37.7	35.7	28.1	22.6	21.2	19.4	21.9	24.1	23.2	24.3	27.0	32.0	-2
Andean Group	16.8	20.8	23.5	23.1	15.4	15.9	15.8	17.9	19.4	21.9	16.8	17.7	21.7	-1
Rest of hemi., ex U.S.	34.9	48.3	44.3	38.6	35.6	35.4	32.4	31.9	33.5	34.2	39.4	43.0	43.5	0
<b>Total agricultural exports</b>														
World	204.7	234.3	233.5	213.5	209.2	221.3	209.1	229.1	252.8	287.5	301.9	326.0	328.5	4
United States <sup>2</sup>	36.2	42.9	45.1	38.3	37.6	39.4	30.8	28.1	31.5	40.6	44.2	45.2	44.6	1
W. Hemisphere, ex U.S.	34.3	39.0	39.1	35.9	37.6	40.4	37.9	37.7	35.4	41.1	40.1	44.4	42.1	1
Canada	5.5	7.1	7.8	8.0	8.2	8.5	6.9	6.5	7.2	8.9	7.9	9.2	9.6	3
Mexico	2.0	1.8	1.7	1.6	1.2	1.7	1.8	2.6	2.3	2.5	2.5	2.8	2.8	4
MERCOSUR	13.2	15.6	16.9	13.7	15.7	17.2	15.8	12.9	13.1	16.5	16.4	17.4	16.3	1
Andean Group	3.9	4.2	3.0	3.1	2.7	3.2	3.3	5.0	3.3	3.4	3.6	3.9	4.2	1
Rest of hemi., ex U.S.	9.7	10.4	9.7	9.4	9.8	9.8	10.0	10.7	9.4	9.9	9.6	11.1	9.1	0
<b>Total agricultural imports</b>														
World	224.3	255.5	254.4	235.1	229.9	242.0	233.8	252.4	279.0	313.6	328.4	352.9	352.4	3
United States <sup>2</sup>	17.8	18.4	18.4	16.9	18.8	22.7	23.1	24.5	24.1	24.7	25.4	27.1	26.7	4
W. Hemisphere, ex U.S.	14.7	19.3	19.8	16.1	15.5	16.5	15.1	15.6	15.5	17.8	20.1	21.8	22.3	2
Canada	4.2	4.6	4.9	4.4	4.4	5.0	4.7	5.0	5.4	6.0	6.5	7.1	7.3	4
Mexico	1.3	3.2	3.5	2.0	2.2	2.5	2.3	1.6	1.7	3.1	4.1	5.0	4.5	5
MERCOSUR	3.1	3.4	3.0	2.2	1.8	1.9	1.7	3.0	2.0	1.5	2.6	2.8	3.1	-1
Andean Group	2.2	3.1	3.4	3.1	2.7	2.7	2.3	1.9	2.3	2.9	2.0	2.0	2.2	-3
Rest of hemi., ex U.S.	3.9	5.0	5.0	4.4	4.3	4.4	4.1	4.0	4.1	4.4	4.8	5.0	5.1	1

<sup>1</sup>Annual growth rates are calculated between the 1979-1981 and 1989-1991 averages. Growth rates are quite dependent on the end years chosen.<sup>2</sup>These data do not correspond exactly with the U.S. Census/Customs data included elsewhere in this report because the FAO data include items such as tobacco products, distilled alcoholic beverages, and feed additives.

Source: FAO (Agrostat). These data include intra-regional trade. Also see note 2 above.



Appendix Table 4:

U.S. agricultural exports: Value by commodity and destination, calendar 1992

Commodity	World	Western Hemi- sphere	NAFTA partners		MERCOSUR	Andean Group	Rest of hemi- sphere
			Canada	Mexico			
----- Million dollars -----							
Total agricultural exports	42,929	11,571	4,902	3,791	281	923	1,673
Animals & animal products	7,925	2,582	892	1,254	44	122	270
Cattle & calves--live	193	181	24	150	3	3	2
Other live animals	293	102	54	44	1	2	2
Beef & veal	2,043	591	355	212	1	2	22
Pork	451	122	28	77	0	4	12
Variety meats, edible offals	573	140	14	104	1	8	12
Other meat & prod, excl poultry	271	96	34	56	0	0	6
Chickens--fresh or frozen	677	242	90	71	0	10	71
Other poultry & poultry products	535	299	127	112	12	20	28
Dairy products	726	270	44	160	6	14	46
Tallow--inedible	349	146	2	40	7	47	50
Other fats, oils, & greases	176	95	20	52	3	8	12
Hides & skins, including furs	1,346	208	68	134	2	1	3
Cattle hides--whole	1,116	152	35	115	0	1	1
Grains & feeds	14,172	2,914	770	1,057	34	405	649
Wheat, unmilled	4,448	440	3	62	17	170	188
Rice--paddy, milled, parboiled	725	222	58	44	2	15	102
Corn	4,702	528	74	129	0	150	176
Grain sorghums	828	548	0	545	0	1	1
Other grains & products	1,403	722	371	153	9	57	132
Feeds & fodders, excl oilcake	2,066	454	264	123	6	11	51
Oilseeds & products	7,190	1,519	286	716	69	201	247
Oilseeds	4,775	768	62	507	66	49	83
Soybeans	4,380	615	18	440	56	37	64
Protein meals	1,398	473	140	115	0	124	94
Soybean meal	1,241	453	137	100	0	123	93
Vegetable oils	1,017	278	84	93	2	29	70
Fruits & prep, including juice	2,732	1,032	858	81	4	29	60
Citrus fruits--fresh	627	151	150	0	0	0	0
Noncitrus fruits--fresh	1,056	538	433	61	2	21	21
Grapes	207	120	105	2	0	3	9
Fruit juices including frozen	420	178	150	4	0	1	22
Nuts & prep	1,139	196	133	37	9	9	9
Beverages excluding juices	678	327	110	52	47	36	82
Vegetables & prep	2,871	1,559	1,133	170	29	59	168
Vegetables--fresh	862	725	669	37	0	1	19
Lettuce--fresh	127	110	102	7	0	0	1
Tomatoes--fresh	140	139	129	10	0	0	0
Pulses, including dried beans	193	54	6	15	0	18	15
Other vegetables & prep	1,816	780	459	118	28	41	134
Sugar & tropical products	1,011	645	394	140	7	23	81
Sugar--cane or beet	146	123	27	31	0	11	55
Other sugar products	257	160	117	29	2	4	8
Chocolate & prep	244	165	97	51	3	5	9
Cotton excluding linters	1,999	189	55	107	5	15	8
Seeds--field & garden	666	237	70	120	24	9	14
Nursery & greenhouse products	216	137	110	19	1	3	6
Tobacco--manufactured	4,509	208	15	6	53	6	129
Fish & shellfish	3,366	357	305	23	1	3	24
Fertilizers & agricultural chemicals	3,671	1,176	426	130	245	129	246
Farm machinery	2,127	1,108	730	134	52	98	94

Sub-commodity titles are indented. Sub-commodities may not sum to totals for that group because some sub-commodities are not included.

Source: U.S. Census/Customs/FATUS data.

Appendix Table 5:  
Selected U.S. agricultural exports: Value by commodity, destination, and calendar year

Commodity/ Country	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	Annual growth rate <sup>1</sup>
----- Million dollars -----															
Percent															
Total agricultural exports															
World	34,749	41,234	43,338	36,627	36,099	37,804	29,041	26,222	28,709	37,080	39,909	39,363	39,192	42,929	0
Western Hemisphere	5,377	8,063	8,441	6,260	7,057	7,226	5,846	5,223	5,486	6,934	7,558	9,289	10,238	11,571	3
Canada	1,688	1,908	2,072	1,820	1,844	1,963	1,622	1,542	1,808	2,019	2,221	4,197	4,554	4,902	8
Mexico	1,026	2,469	2,432	1,156	1,942	1,993	1,439	1,080	1,202	2,235	2,724	2,553	2,998	3,791	4
MERCOSUR	583	743	758	549	504	536	489	605	341	108	202	215	326	281	-8
Andean Group	1,014	1,437	1,672	1,355	1,389	1,348	1,060	812	877	1,178	882	752	729	923	-5
Rest of hemisphere	1,067	1,506	1,507	1,380	1,378	1,386	1,235	1,185	1,258	1,414	1,529	1,571	1,630	1,673	2
Animals & animal products															
World	3,765	3,768	4,237	3,940	3,787	4,228	4,150	4,547	5,156	6,422	6,378	6,712	7,006	7,925	6
Western Hemisphere	941	960	1,118	962	916	1,069	1,113	1,139	1,262	1,654	1,675	1,831	2,414	2,582	8
Canada	306	278	333	278	288	338	283	295	382	390	424	802	877	892	10
Mexico	268	277	370	300	260	334	465	319	356	828	831	662	1,123	1,254	12
MERCOSUR	33	44	22	21	17	36	37	181	132	41	96	56	55	44	4
Andean Group	112	111	136	109	99	93	85	94	112	122	61	67	94	122	-2
Rest of hemisphere	222	249	257	254	252	268	242	249	279	273	264	244	265	270	1
Beef & veal															
World	242	249	300	373	392	470	467	634	771	1,109	1,420	1,579	1,757	2,043	19
Western Hemisphere	46	57	67	62	66	79	60	95	127	151	235	423	603	591	23
Canada	13	19	31	22	24	45	34	29	55	80	126	306	385	355	29
Mexico	2	2	5	4	1	1	4	1	7	40	78	80	185	212	44
MERCOSUR	0	0	0	0	0	0	0	40	19	0	0	0	0	1	15
Andean Group	0	1	1	5	9	0	0	0	17	0	0	0	0	2	-2
Rest of hemisphere	30	34	31	31	33	33	22	25	29	31	30	37	33	22	0
Poultry & products															
World	409	603	770	515	428	415	384	504	602	689	713	954	1,094	1,211	6
Western Hemisphere	169	185	245	176	142	153	147	163	188	269	284	370	466	541	8
Canada	48	46	52	52	54	73	59	62	72	78	102	187	194	217	14
Mexico	18	23	58	31	12	16	20	20	21	81	67	73	131	183	13
MERCOSUR	9	14	10	8	6	2	5	5	12	11	12	14	15	12	2
Andean Group	32	27	51	22	12	5	7	7	11	8	7	10	24	30	-5
Rest of hemisphere	62	74	74	63	59	57	56	69	72	92	97	86	101	99	3
Grains & feeds															
World	15,252	19,126	20,465	15,686	16,250	17,163	11,882	8,656	9,423	13,994	17,155	14,378	12,733	14,172	-3
Western Hemisphere	2,045	3,604	3,498	2,208	3,194	2,585	2,009	1,508	1,356	1,938	2,405	2,702	2,496	2,914	-1
Canada	210	266	312	209	201	226	201	183	181	262	312	559	615	770	9
Mexico	497	1,222	1,061	296	1,107	703	434	212	366	645	962	961	741	1,057	0
MERCOSUR	430	626	646	431	435	418	374	300	52	1	28	86	166	34	-15
Andean Group	481	790	808	679	807	666	516	401	335	519	517	445	328	405	-5
Rest of hemisphere	427	699	672	593	645	572	484	413	421	511	586	651	645	649	1
continued--															

continued--



Appendix Table 5 (continued):

Selected U.S. agricultural exports: Value by commodity, destination, and calendar year

Commodity/ Country	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	Annual growth rate <sup>1</sup>
	----- Million dollars -----														Percent
<b>Oilseeds &amp; products</b>															
World	8,887	9,394	9,555	9,141	8,716	8,369	5,794	6,467	6,446	7,695	6,345	5,710	6,397	7,190	-3
Western Hemisphere	924	1,273	1,231	1,149	1,229	1,803	1,165	1,024	1,157	1,476	1,163	953	1,226	1,519	1
Canada	238	244	212	199	211	264	185	210	241	263	262	289	301	286	2
Mexico	176	503	368	351	450	821	394	373	313	595	444	327	524	716	4
MERCOSUR	65	4	29	56	3	27	47	67	96	10	21	3	9	69	-2
Andean Group	258	313	387	331	368	447	337	214	320	405	201	133	155	201	-6
Rest of hemisphere	187	209	235	212	197	244	202	160	186	203	235	201	236	247	1
<b>Fruits &amp; prep, incl juices</b>															
World	1,127	1,335	1,497	1,376	1,349	1,243	1,186	1,306	1,484	1,762	1,836	2,359	2,498	2,732	6
Western Hemisphere	431	504	575	549	485	463	379	362	396	453	479	961	978	1,032	6
Canada	356	398	436	435	420	400	323	300	335	388	390	834	830	858	7
Mexico	9	13	33	10	5	12	10	6	9	14	36	47	60	81	12
MERCOSUR	4	7	6	1	1	1	1	4	1	1	1	6	3	4	-2
Andean Group	24	35	49	54	11	8	7	5	4	5	3	19	27	29	-3
Rest of hemisphere	39	50	50	48	48	42	39	48	47	45	48	54	57	60	2
<b>Vegetables &amp; prep</b>															
World	764	1,188	1,553	1,175	980	1,002	930	1,085	1,158	1,361	1,601	2,302	2,615	2,871	8
Western Hemisphere	382	668	875	627	494	516	479	539	557	585	718	1,281	1,381	1,559	7
Canada	243	260	344	326	323	327	252	244	298	318	364	875	1,032	1,133	12
Mexico	26	245	359	115	11	18	37	88	46	37	123	190	123	170	-2
MERCOSUR	14	21	18	18	17	27	11	17	12	10	21	19	24	29	3
Andean Group	35	49	63	70	48	42	51	29	32	34	38	38	39	59	-1
Rest of hemisphere	64	93	91	99	95	101	127	152	170	185	172	159	164	168	6
<b>Sugar &amp; tropical products</b>															
World	501	832	1,084	586	541	573	515	618	689	775	674	875	923	1,011	1
Western Hemisphere	232	546	639	306	254	316	263	273	298	333	385	570	628	645	2
Canada	115	162	164	144	137	152	155	155	176	177	186	313	340	394	8
Mexico	10	151	168	13	22	29	14	7	10	25	112	163	184	140	4
MERCOSUR	7	9	16	7	6	4	3	6	4	5	2	3	6	7	-6
Andean Group	48	100	187	69	20	47	26	35	33	35	28	18	37	23	-12
Rest of hemisphere	53	124	104	73	69	84	65	70	75	91	58	73	62	81	-2

<sup>1</sup>Annual growth rates are calculated between the 1979-1981 and 1990-1992 averages. The growth rates are quite dependent on the end years chosen.  
Source: U.S. Census/Customs/FATUS data.

Appendix Table 6:

U.S. agricultural imports: Value by commodity and origin, calendar year 1992

Commodity <sup>1</sup>	World	Western Hemi- sphere	NAFTA partners		MERCOSUR	Andean Group	Rest of hemi- sphere
			Canada	Mexico			
----- Million dollars -----							
Total agricultural imports	24,624	12,044	4,102	2,372	1,847	1,413	2,310
Noncompetitive ag imports	5,678	3,189	242	402	558	1,014	972
Bananas	1,097	1,091	0	103	1	449	539
Cocoa & products	1,080	468	153	25	184	65	41
Coffee, including products	1,706	1,455	38	252	293	491	38
Competitive agricultural imports <sup>2</sup>	18,946	8,855	3,859	1,970	1,289	399	1,338
Animals & products	5,680	2,640	1,853	372	266	10	139
Cattle	1,245	1,245	903	341	0	0	0
Beef & veal	1,891	641	290	1	219	0	130
Pork	620	348	348	0	0	0	0
Hides & skins, incl furs	185	117	105	6	4	1	1
Non-animal products	13,266	6,215	2,007	1,598	1,023	389	1,199
Grains & feeds	1,586	853	778	53	5	9	8
Wheat, excluding seed	188	188	187	0	1	0	0
Biscuits & wafers	399	183	161	15	1	3	3
Feeds & fodders, ex oilcake	276	160	158	0	0	0	1
Oilseeds & products	1,219	415	319	42	34	2	18
Oilseeds & oilnuts	136	115	72	25	0	0	17
Oils & waxes--vegetable	1,002	222	171	17	32	2	0
Rapeseed oil	178	150	150	0	0	0	0
Fruits & preps	1,408	859	70	321	25	15	429
Berries incl strawberries	88	82	44	27	0	4	6
Grapes	262	261	0	67	0	0	194
Mangoes	71	71	0	63	2	6	0
Melons	133	133	0	69	0	1	63
Other fresh or frozen fruit	322	237	20	51	15	0	151
Fruit juices	808	536	11	26	401	9	89
Apple juice	299	164	3	12	105	0	44
Orange juice	264	264	2	7	231	0	23
Beverages, ex fruit juices	2,059	418	198	167	9	3	41
Malt beverages	864	297	142	147	0	1	6
Nuts & preps	467	229	13	63	134	6	13
Cashew nuts	263	124	0	0	122	0	1
Vegetables & preps	2,184	1,241	249	809	29	16	138
Vegetables--fresh or frozen	1,034	942	146	699	4	7	86
Cauliflower & broccoli	136	136	2	122	0	0	12
Cucumbers	74	74	3	65	0	0	6
Onions	111	105	9	94	0	0	2
Peppers	148	118	4	113	0	0	0
Potatoes, fresh or frozen	68	67	67	0	0	0	0
Tomatoes	146	139	6	133	0	0	1
Vegetables--prep/preserved	1,150	299	103	110	24	9	53
Sugar & related products	1,139	683	179	26	105	67	306
Sugar--cane & beet	642	434	52	0	65	57	260
Tobacco--unmanufactured	1,353	391	37	13	270	12	59
Seeds--field & garden	214	119	61	6	8	0	43
Cut flowers	341	281	4	10	0	250	18
Nursery stock, bulbs, etc.	250	108	83	8	0	0	16
Tobacco, manufactured	285	253	210	3	0	0	40
Fish & shellfish	5,401	2,334	1,010	241	163	510	411
Fertilizers & agricultural chemicals	2,055	1,339	993	139	52	13	142
Farm machinery	2,203	398	348	26	21	2	1

<sup>1</sup>Sub-commodity titles are indented. Sub-commodities may not sum to totals for that group because some sub-commodities are not included.

<sup>2</sup>Competitive agricultural imports include commodities that the United States also produces.

Source: U.S. Census/Customs/FATUS data.



Appendix Table 7:

Selected U.S. agricultural imports: Value by commodity, origin, and calendar year

Commodity/ Country	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	Annual growth rate <sup>1</sup>
	----- Million dollars -----														Percent
<b>Total agricultural imports</b>	16,723	17,401	16,907	15,345	16,536	19,334	19,968	21,453	20,402	20,955	21,749	22,770	22,719	24,624	3
World	7,907	8,334	7,770	7,048	7,683	9,026	9,533	10,442	9,593	9,751	10,451	11,348	11,228	12,044	3
Western Hemisphere	948	1,064	1,156	1,396	1,506	1,851	1,894	2,017	2,214	2,443	2,915	3,152	3,306	4,102	12
Canada	1,230	1,063	1,108	1,158	1,280	1,279	1,446	2,080	1,867	1,820	2,280	2,611	2,527	2,372	7
Mexico	1,949	2,393	2,473	1,785	1,978	2,472	2,671	2,153	2,190	2,264	1,834	1,983	1,877	1,847	-2
MERCOSUR	1,637	1,572	1,045	1,059	1,024	1,333	1,493	1,820	1,334	1,344	1,409	1,421	1,415	1,413	0
Andean Group	2,143	2,243	1,988	1,650	1,896	2,092	2,029	2,373	1,988	1,880	2,013	2,181	2,103	2,310	0
Rest of hemisphere															
<b>Bananas</b>	412	439	554	590	600	665	763	763	819	832	872	939	1,006	1,097	7
World	409	436	549	586	597	655	754	758	816	826	867	934	1,000	1,092	7
Western Hemisphere															
Canada	0	0	0	0	0	1	1	1	0	0	0	0	0	0	10
Mexico	4	0	0	0	0	0	0	0	0	0	0	0	0	0	-37
MERCOSUR	0	4	4	2	3	3	2	2	2	2	2	1	1	1	-8
Andean Group	132	135	179	219	193	245	289	319	318	329	359	449	488	449	11
Rest of hemisphere	273	296	366	364	401	406	463	437	495	495	505	484	511	642	5
<b>Cocoa &amp; products</b>	1,204	921	916	706	841	1,134	1,351	1,129	1,194	1,003	991	1,094	1,092	1,080	1
World	615	457	383	336	357	564	645	559	659	505	441	504	463	468	0
Western Hemisphere	17	26	21	27	29	62	52	58	63	55	101	119	128	153	18
Canada	24	22	9	5	19	20	29	21	27	31	23	37	14	25	3
Mexico	314	198	195	134	172	244	286	299	340	224	167	175	175	184	-3
MERCOSUR	134	135	93	102	71	138	193	93	140	113	91	114	102	65	-2
Andean Group	126	76	65	68	65	99	85	87	88	82	60	59	44	41	-5
Rest of hemisphere															
<b>Coffee</b>	4,158	4,186	2,882	2,903	2,771	3,271	3,322	4,620	2,908	2,470	2,432	1,915	1,859	1,706	-6
World	3,228	3,154	2,067	1,991	2,013	2,419	2,551	3,454	2,277	1,968	1,995	1,582	1,638	1,455	-5
Western Hemisphere	4	2	4	4	1	1	13	57	67	28	31	33	31	38	23
Canada	420	311	248	264	264	323	368	603	399	296	501	338	333	252	-1
Mexico	743	1,090	870	683	692	819	782	629	558	635	473	347	429	293	-8
MERCOSUR	1,171	1,011	510	533	518	677	742	1,160	651	621	580	451	466	491	-6
Andean Group	890	740	435	507	525	599	645	1,006	602	387	409	413	378	381	-5
Rest of hemisphere															
<b>Competitive ag imports<sup>2</sup></b>	9,439	10,358	11,171	9,985	11,009	12,619	13,067	13,436	13,781	14,691	15,610	17,202	17,139	18,946	5
World	3,529	4,150	4,657	4,025	4,596	5,241	5,432	5,528	5,677	6,303	7,006	8,183	7,972	8,855	7
Western Hemisphere	913	1,021	1,120	1,351	1,460	1,771	1,811	1,886	2,067	2,339	2,760	2,976	3,115	3,859	11
Canada	753	702	825	866	950	906	1,020	1,417	1,405	1,448	1,720	2,184	2,101	1,970	10
Mexico	835	1,034	1,350	916	1,056	1,328	1,513	1,143	1,194	1,336	1,123	1,390	1,195	1,289	2
MERCOSUR	190	279	253	193	234	264	260	243	216	273	367	395	348	399	4
Andean Group	839	1,115	1,109	699	896	974	828	840	795	908	1,036	1,238	1,212	1,338	2
Rest of hemisphere															

continued--

Appendix Table 7 (continued):

Selected U.S. agricultural imports: Value by commodity, origin, and calendar year

Commodity/ Country	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	Annual growth rate <sup>1</sup>
----- Million dollars -----															
<b>Cattle</b>															Percent
World	247	237	191	298	313	286	307	441	421	598	662	978	952	1,245	15
Western Hemisphere	247	237	191	298	312	285	305	441	421	598	661	978	951	1,245	15
Canada	154	148	123	182	173	188	181	143	168	336	377	559	590	903	15
Mexico	93	89	68	115	139	96	124	297	252	262	284	419	361	341	15
MERCOSUR	0	0	0	0	0	0	0	0	0	0	0	0	0	0	N/A
Andean Group	0	0	0	0	0	0	0	0	0	0	0	0	0	0	N/A
Rest of hemisphere	0	0	0	0	0	0	0	0	0	0	0	0	0	0	N/A
<b>Beef &amp; veal</b>															
World	1,967	1,780	1,408	1,364	1,363	1,228	1,276	1,289	1,562	1,679	1,663	1,872	1,964	1,891	1
Western Hemisphere	595	529	495	412	444	435	466	430	487	440	514	545	612	641	1
Canada	84	96	109	114	116	143	153	131	138	119	189	191	192	290	8
Mexico	6	1	2	1	4	1	4	5	0	0	0	3	2	1	-3
MERCOSUR	202	209	207	146	191	192	191	163	224	188	187	195	261	219	1
Andean Group	0	0	0	0	0	0	0	0	0	0	0	0	0	0	N/A
Rest of hemisphere	303	223	177	150	133	100	118	131	125	134	138	157	157	130	-4
<b>Grains &amp; feeds</b>															
World	275	334	354	402	457	566	623	693	748	909	1,219	1,189	1,321	1,586	14
Western Hemisphere	174	207	217	243	258	299	298	331	362	486	642	592	630	853	12
Canada	155	186	197	221	239	262	257	294	332	425	560	539	566	778	12
Mexico	9	9	9	9	5	12	13	11	11	18	29	28	40	53	15
MERCOSUR	6	4	5	3	3	15	14	14	8	32	21	10	11	5	6
Andean Group	3	3	3	3	3	4	5	5	5	6	10	8	7	9	10
Rest of hemisphere	2	6	4	7	8	6	9	6	6	5	22	8	6	8	5
<b>Fruits &amp; preps</b>															
World	421	420	442	506	559	667	821	874	987	1,042	1,094	1,228	1,345	1,408	11
Western Hemisphere	201	198	211	262	290	329	410	455	588	650	676	790	846	859	14
Canada	30	29	34	42	39	42	46	57	65	73	60	62	67	70	7
Mexico	124	118	109	119	120	118	131	140	201	196	228	244	331	321	9
MERCOSUR	3	2	2	5	6	8	8	6	12	15	19	16	17	25	22
Andean Group	1	1	1	2	2	3	4	6	2	3	3	6	10	15	21
Rest of hemisphere	42	47	65	93	123	157	220	246	308	364	365	463	421	429	21
<b>Vegetables &amp; preps</b>															
World	793	867	1,057	1,088	1,079	1,337	1,391	1,610	1,543	1,624	2,047	2,266	2,211	2,184	8
Western Hemisphere	433	441	600	598	645	665	718	887	794	829	1,140	1,387	1,305	1,241	9
Canada	36	48	64	76	91	102	96	107	126	144	205	212	237	249	15
Mexico	352	347	480	462	485	480	526	673	545	550	760	1,002	902	809	8
MERCOSUR	8	8	11	15	19	22	28	32	33	43	42	28	28	29	11
Andean Group	6	5	7	4	4	5	5	7	8	9	15	15	12	16	8
Rest of hemisphere	31	32	38	42	46	55	62	69	82	83	118	130	127	138	13

continued--

Appendix Table 7 (continued):

Selected U.S. agricultural imports: Value by commodity, origin, and calendar year

Commodity/ Country	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	Annual growth rate <sup>1</sup>
	----- Million dollars -----														Percent
<b>Sugar &amp; related products</b>															
World	1,214	2,205	2,391	1,002	1,304	1,442	1,190	991	630	694	956	1,172	1,065	1,139	-5
Western Hemisphere	890	1,477	1,545	588	878	921	738	670	421	481	602	732	628	683	-6
Canada	50	26	25	43	71	92	105	125	100	93	116	119	133	179	14
Mexico	57	21	15	17	35	22	26	40	46	45	54	21	33	26	-1
MERCOSUR	300	518	633	146	202	224	223	173	91	110	104	201	133	105	-10
Andean Group	99	181	144	70	96	90	91	66	33	51	113	118	63	67	-5
Rest of hemisphere	384	733	728	313	475	492	294	265	151	182	215	273	266	306	-7

<sup>1</sup>Annual growth rates are calculated between the 1979-1981 and 1990-1992 averages. The growth rates are quite dependent on the end years chosen.<sup>2</sup>Competitive agricultural imports include commodities that the United States also produces.

Source: U.S. Census/Customs/FATUS data.



Appendix Table 8:  
Selected commodity prices

Commodity	Units	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	Annual growth rate <sup>1</sup>
		----- U.S. cents or dollars -----														Percent
Bananas	cents/pound	14.78	17.01	18.20	17.00	19.47	16.76	17.15	17.32	17.11	21.73	24.80	24.60	25.46	21.69	3
Beef	cents/pound	130.82	125.19	112.12	108.39	110.67	103.11	97.67	94.98	108.18	114.17	116.46	116.27	120.83	111.34	0
Cocoa beans	cents/pound	149.36	118.09	94.19	79.01	96.10	108.67	102.27	93.82	90.62	71.84	56.34	57.52	54.10	49.87	-7
Coffee	cents/pound	178.47	208.79	186.44	143.68	142.75	149.65	148.93	231.19	106.37	121.84	98.76	83.80	72.88	56.26	-9
Corn	\$/bushel	2.94	3.19	3.32	2.75	3.45	3.45	2.85	2.23	1.92	2.72	2.83	2.78	2.73	2.65	-1
Hides	cents/pound	73.13	45.92	41.72	38.56	45.13	58.87	51.18	63.96	79.84	87.65	90.02	92.23	79.45	75.86	4
Petroleum	\$/barrel	21.45	33.67	36.47	33.18	28.93	28.54	26.67	13.49	17.65	14.08	17.68	21.13	18.02	17.75	-4
Rice	\$/metric ton	381.21	495.12	565.48	366.70	378.46	379.74	382.50	342.83	323.53	429.90	409.32	389.62	418.15	401.89	-2
Sorghum	\$/metric ton	108.11	128.86	126.54	108.35	128.42	118.19	102.97	82.41	72.82	98.46	105.94	103.94	105.03	102.76	-1
Soybeans	\$/metric ton	297.75	296.25	288.42	244.50	281.67	282.08	224.42	208.42	215.75	303.50	275.00	246.75	239.58	235.50	-2
Soybean meal	\$/metric ton	243.00	258.58	252.67	218.00	237.83	197.17	157.17	184.75	203.25	267.50	247.33	200.08	197.08	205.75	-2
Soybean oil	\$/metric ton	562.17	598.25	506.92	447.33	526.92	725.17	576.00	342.42	334.25	463.42	431.50	447.50	453.90	428.66	-3
Sugar	cents/pound	15.53	30.03	19.73	19.92	22.04	21.74	20.35	20.95	21.83	22.12	22.81	23.25	21.55	21.30	0
Tobacco	cents/pound	134.76	142.59	160.86	182.72	185.52	185.60	184.33	163.66	157.21	159.63	171.72	175.40	185.04	185.02	2
Wheat	\$/bushel	4.36	4.70	4.76	4.36	4.28	4.15	3.70	3.13	3.07	3.95	4.61	3.69	3.50	4.12	-2

<sup>1</sup>Annual growth rates are calculated between the 1979-1981 and 1990-1992 averages. The growth rates are quite dependent on the end years chosen.

Source: International Financial Statistics, except the petroleum price, which is from the U.S. Dept. of Energy Monthly Energy Review.

Prices:

Bananas - at U.S. ports; origin, Latin America

Beef - at U.S. ports; origin, all

Cocoa beans - at New York and London

Coffee - at New York; origin, Brazil

Corn - at U.S. Gulf ports; origin, U.S.

Hides - at Chicago; origin, U.S.

Petroleum - U.S. imports, landed cost

Rice - at New Orleans; origin, U.S.

Sorghum - at U.S. Gulf ports; origin, U.S.

Soybeans - at Rotterdam; origin, U.S.

Soybean meal - at Rotterdam; origin, all

Soybean oil - at Dutch ports; origin, all

Sugar - U.S. import price

Tobacco - at all U.S. markets; origin, U.S.

Wheat - at U.S. Gulf ports; origin, U.S.

Appendix Table 9:

U.S. commodity program levels, crop years 1988-93

Commodity/ provision	1989	1990	1991	1992	1993
<b>Wheat<sup>1</sup>:</b>					
Target price (\$/bu.)	4.10	4.00	4.00	4.00	4.00
Basic loan rate (\$/bu.)	2.58	2.49	2.49	2.49	2.45
Announced loan rate (\$/bu.)	2.06	1.95	1.95	1.95	1.95
Acreage reduction (percent)	10.0	5.0 <sup>2</sup>	5.0	5.0	0.0
National program yield (bu./acre)	33.8	35.0	35.0	35.0	35.0
National base acreage (million)	82.3	80.5	79.3	82.2	N.R.
<b>Rice<sup>1</sup>:</b>					
Target price (\$/cwt.)	10.80	10.71	10.71	10.71	10.71
Basic loan rate (\$/cwt.)	6.50	6.50	6.50	6.50	6.50
Loan repayment rate (\$/cwt.)	5.74	5.94	5.85	N.R.	N.R.
Acreage reduction (percent)	25.0	20.0	5.0	0.0	0.0
National program yield (lb./acre)	4,864	4,849	4,849	4,849	4,849
National base acreage (million)	4.2	4.2	4.2	4.1	N.R.
<b>Corn<sup>1</sup>:</b>					
Target price (\$/bu.)	2.84	2.75	2.75	2.75	2.75
Basic loan rate (\$/bu.)	2.06	1.96	1.89	2.01	2.01
Announced loan rate (\$/bu.)	1.65	1.57	1.62	1.72	1.72
Acreage reduction (percent)	10.0	10.0	7.5	5.0	10.0
National program yield (bu./acre)	104.6	104.2	104.2	104.2	104.2
National base acreage (million)	82.7	82.6	82.9	82.2	N.R.
<b>Grain sorghum<sup>1</sup>:</b>					
Target price (\$/bu.)	2.70	2.61	2.61	2.61	2.61
Basic loan rate (\$/bu.)	1.96	1.86	1.80	1.91	1.91
Announced loan rate (\$/bu.)	1.57	1.49	1.54	1.63	1.63
Acreage reduction (percent)	10.0	10.0	7.5	5.0	5.0
National program yield (bu./acre)	58.3	60.0	60.0	60.0	60.0
National base acreage (million)	16.2	15.4	13.5	13.6	N.R.
<b>Barley<sup>1</sup>:</b>					
Target price (\$/bu.)	2.43	2.36	2.36	2.36	2.36
Basic loan rate (\$/bu.)	1.68	1.60	1.54	1.64	1.64
Announced loan rate (\$/bu.)	1.34	1.28	1.32	1.40	1.40
Acreage reduction (percent)	10.0	10.0	7.5	5.0	0.0
National program yield (bu./acre)	45.6	49.0	49.0	49.0	49.0
National base acreage (million)	12.3	11.9	11.5	11.1	N.R.
<b>Oats<sup>1</sup>:</b>					
Target price (\$/bu.)	1.50	1.45	1.45	1.45	1.45
Basic loan rate (\$/bu.)	1.06	1.01	0.97	1.03	1.03
Announce loan rate (\$/bu.)	0.85	0.81	0.83	0.88	0.88
Acreage reduction (percent)	5.0	5.0	0.0	0.0	0.0
National program yield (bu./acre)	50.0	50.0	50.0	50.0	50.0
National base acreage (million)	7.6	7.5	7.3	7.3	N.R.
<b>Rye:</b>					
Loan rate (\$/bu.)	1.40	1.33	1.38	1.46	1.46
<b>Upland cotton<sup>1</sup>:</b>					
Target price (cents/lb.)	73.40	72.90	72.90	72.90	72.90
Basic loan rate (cents/lb.)	50.00	50.27	50.77	52.35	52.35
Loan repayment rate (cents/lb.)	50.00	50.27	47.23	N.R.	N.R.
Acreage reduction (percent)	25.0	12.5	5.0	10.0	7.5
National program yield (lb./acre)	592	595	595	595	595
National base acreage (million)	14.6	14.4	14.6	14.9	N.R.
<b>Extra-long staple (ELS) cotton:</b>					
Target price (cents/lb.)	96.70	98.10	99.60	105.80	105.70
Loan rate (cents/lb.)	81.77	81.77	82.99	88.15	88.12
Acreage reduction (percent)	5.0	5.0	5.0	5.0	20.0
National program yield (lb./acre)	601	915	903	N.R.	N.R.
National base acreage (thousand)	124.4	152.3	231.3	142.9	N.R.

See footnotes at end of table.

Continued--

**Appendix Table 9 (continued):**  
U.S. commodity program levels, crop years 1989-93

Commodity/ provision	1989	1990	1991	1992	1993
Soybeans:					
Loan rate (\$/bu.)	4.53	4.50	5.02	5.02	5.02
Other oilseeds:					
Loan rate (\$/cwt.)	--	--	8.90	8.90	8.90
Peanuts:					
Loan rate, quota (cents/lb.)	30.79	31.57	31.57	31.57	31.57
Loan rate, non quota (cents/lb.)	7.49	7.49	7.49	7.49	7.49
Marketing poundage quota (1,000 tons)	1,440.0	1,580.0	1,580.0	1,580.0	1,580.0
Flue-cured tobacco:					
Loan rate (cents/lb.)	146.8	148.8	152.8	156.0	N.R.
No-net-cost assessment (cents/lb.)	1.00	2.00	2.00	2.00	N.R.
National marketing quota (million lbs.)	890.5	877.7	877.6	891.8	891.8
Effective marketing quota (million lbs.)	903.6	936.1	891.5	899.0	877.0
National allotment acreage	426,485	420,354	420,354	427,107	N.R.
Burley tobacco:					
Loan rate (cents/lb.)	153.2	155.8	158.4	165.9	N.R.
No-net-cost assessment (cents/lb.)	0.83	1.00	2.00	2.00	N.R.
National marketing quota (million lbs.)	586.9	601.3	724.1	668.5	603.0
Effective marketing quota (million lbs.)	660.7	741.2	846.1	836.0	730.0
Wool:					
Support level (cents/lb.)	177.0	182.0	188.0	197.0	N.R.
Payment rate (percent of market price)	42.7	127.5	241.8	N.R.	N.R.
Unshorn lamb payment rate (\$/cwt.)	2.12	4.08	5.32	N.R.	N.R.
Mohair:					
Support level (cents/lb.)	458.8	453.2	444.8	461.3	N.R.
Payment rate (percent of market price)	190.4	387.3	247.5	N.R.	N.R.
Sugar:					
Loan rate for raw cane (cents/lb.)	18.00	18.00	18.00	18.00	N.R.
Loan rate for refined beet (cents/lb.)	21.54	21.93	21.93	21.93	N.R.
Honey:					
Loan rate (cents/lb.)	56.36	53.77	53.80	53.80	53.80

1 The triple base program become effective with the program crops starting in 1991. Producers may plant certain other crops on up to 25 percent of any participating program crop acreage base. This acreage is known as "flex" acreage, and the plantings can be credited as "considered planted" to the program crop. The first 15 percent of the flex acreage is known as "normal flex acreage" (NFA). NFA are not eligible for deficiency payments whether or not they are planted to the program crop or flexed to another crop. Nevertheless, program crops or oilseeds planted on NFA are eligible for price support loans. The other 10 percent of the flex acreage is known as "optional flex acreage" (OFA). If OFA are planted to the program crop, they are eligible for deficiency payments. If they are flexed to another crop, they are not eligible for deficiency payments. However, other program crops or oilseeds planted on OFA are eligible for price support loans.

2 In 1990, producers had the opportunity to plant up to 105 percent of their wheat base. For each acre planted above 95 percent of the base, the acreage used in determining the producer's deficiency payment decreased by one acre.

-- = Not applicable.

N.R. = Not released.



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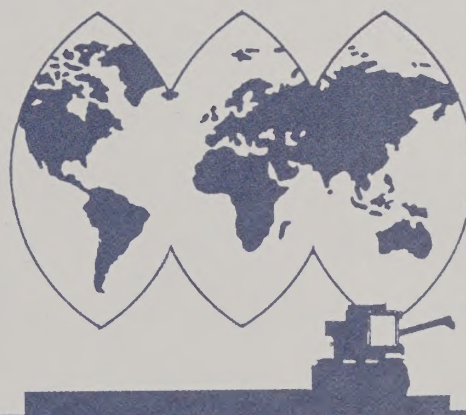
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